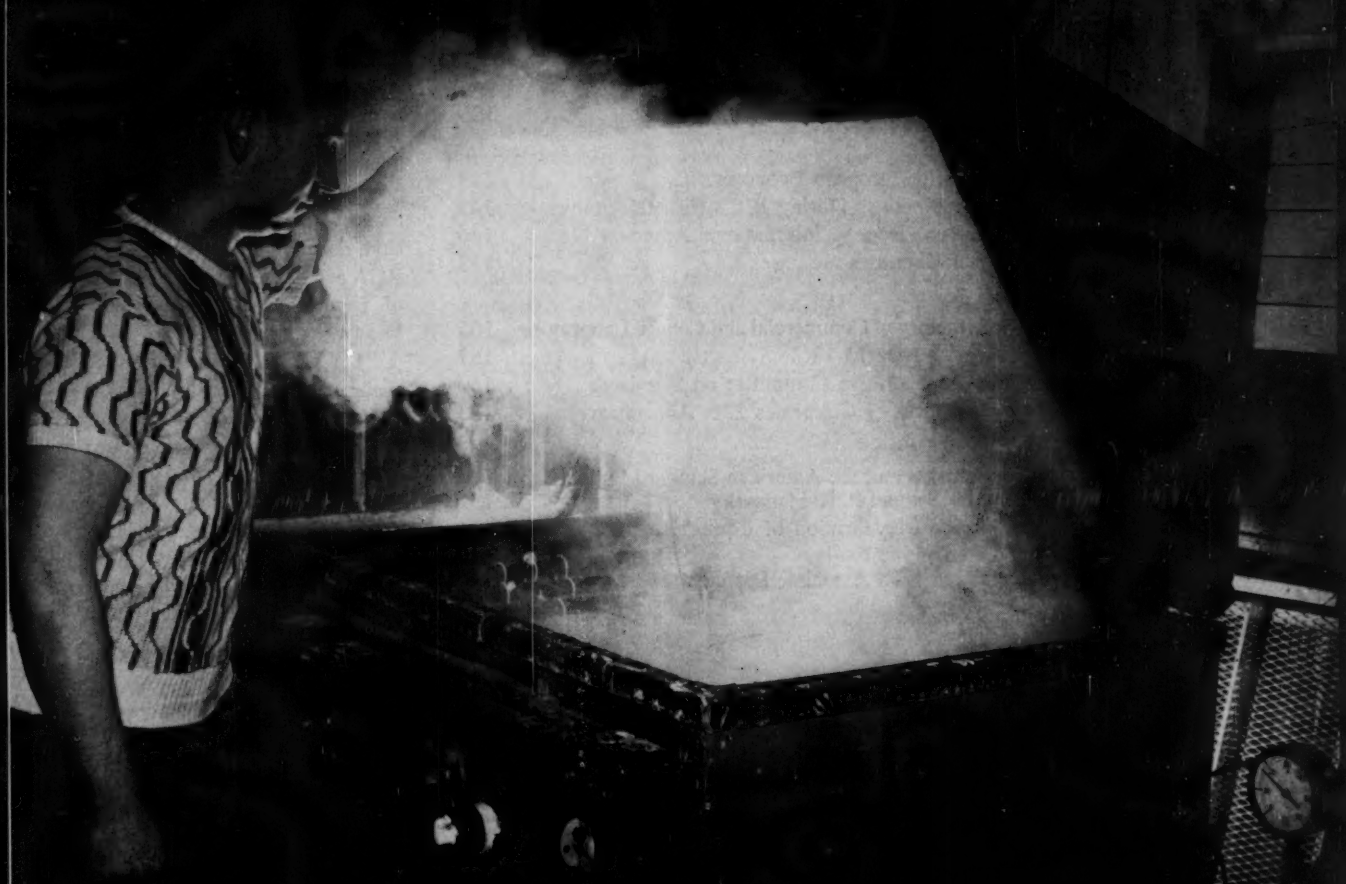
The Magazine of

STANDARDS



The Magazine of

STANDARDS

Formerly Standardization

MAY 1954 Volume 25, No. 5

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MARGINAL NOTES

On a Numbering System —

"I have read with a great deal of interest Mr P. J. Callan's paper 'An Identifying Numbering System for Purchased Material'," writes F. M. Oberlander, Standardizing Division, Radio Corporation of America. "The 10-digit numerical code employed in Eastman Kodak Company is similar in many respects to an 8-digit code used in the Radio Corporation of America. It has become clear to us through experience that increasing the number of digits does not necessarily increase the utility of the code. The manner in which significance is assigned to the digits is at least of equal importance.

"Until the beginning of World War II, the then RCA Manufacturing Company used a 6-digit material code. When the inadequacy of this system became apparent, a 10-digit code was devised. In two years time, numbers began to run out in some sections of the code.

"The Standardizing Division then worked up an 8-digit code which has been in operation since 1944. This code continues to fulfill all requirements with adequate room for expansion, despite the increase in scope of RCA activities, and the large number of new materials which were unknown ten years ago.

"The key to this success with fewer digits was greater flexibility in the assignment of significance to the digits. The 10-digit code which proved inadequate had been based upon a rigid 4-3-3 grouping of digits. In the present 8-digit system, the groupings vary from 1-2-1-4 to 2-3-3, to meet the requirements for various types of products.

ASA
Reg. U. S. Pat. Off.

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Opinions expressed by authors in THE MAGAZINE OF STANDARDS *are not necessarily those of the American Standards Association.*

"I was pleased to note that a similar degree of flexibility has been built into the Eastman Kodak Code."

Nonstandard Safety —

Since we are all interested in standards and the March issue of THE MAGAZINE OF STANDARDS is concerned largely with safety standards, "may I have the temerity to call your attention to a feature in this issue," an official of the National of Hartford Group of insurance companies inquires. He then points out—

"The cut on the upper half of page 76 shows an employee operating an 'electron-powered' tool. There is a plate on this tool which clearly instructs the operator to 'Wear goggles while operating this machine.' The employee in the illustration, I should say, is not wearing goggles, but only an ordinary pair of eye glasses. To that extent, this employee is breaking a cardinal safety rule."

Photography on Vacation —

Once in a while ASA hears from one of its former employees, still interested in standardization and in the Association. A former office manager, now retired and spending an extended vacation in Europe writes: "At Casino, Italy, the market day was very picturesque and everyone with a camera was busy snapping away. A young man from Australia with whom we had been talking dashed over to us between pictures to ask if our exposure meter was a GE, and whether he could compare his with ours. His was a new one, which he said conformed to 'ISI' standards. Later we asked him about the 'ISI' standards. 'Oh, no,' he said, 'Ay-S-Ay!' 'Ay-S-Ay,' I finally realized, was 'ASA.' 'In Australia,' he said, 'we think that ASA is the standard of the world'."

Our Front Cover —

International tests for electronic parts (page 146) include a salt spray test such as the one being conducted in this test chamber. Courtesy Sprague Electric Co.

THIS MONTH'S STANDARDS PERSONALITY

Earl Barber Paxton has devoted his energy and thought for 32 years to development of standards — industry, nationwide, and international — and has still found time for his favorite sports — canoeing, hunting, fishing, and skate sailing. These provide year-round outdoor exercise, and stimulate an interest in conservation, he says.

At present, Earl Paxton is supervisor of electrical and related standards, Standards Services Department, General Electric Company, Schenectady, N. Y. He has been with G-E since 1922 — two years after his graduation from the University of Florida, with the degree of BSEE — when he became assistant to H. M. Hobart, Consulting Engineer.

In the intervening years he has become recognized as advisor and authority on standards and codes not only in the General Electric Company but with others, too — Underwriters' Laboratories, the International Association of Electrical Inspectors, and ASA. Until 1931 when he was associated with L. F. Adams, he spent his time in studying and investigating electrical machines, and in developing industry standards. Through these activities, he obtained a patent for a method of arc welding and helped to bring about adoption of a new method of transposition of slot portions of armature winding of large a-c machines.

Both Hobart and Adams took an active interest in standardization on a nationwide scale and Mr Paxton's interest was stimulated through their activities. His first experience was revision of standards of the American Institute of Electrical Engineers. This was an unusual education since he took an active part and personally prepared preliminary drafts of many of the revised standards when the single volume of AIEE Standards was expanded and the individual standards published separately. Since that time his efforts in developing both AIEE and American Standards have contributed substantially to the existence today of practical working standards for the electrical industry, to which designs conform and which serve as a basis for commercial transactions on a large percentage of the electric machines and apparatus manufactured.

Mr Paxton is a member of many of the important standardization committees in the electrical field, and has had responsibility as an officer for the work of a number of them. Among these are AIEE's Standards Committee (chairman 1950-1951; member since 1932); Sectional Committee on Rotating Electrical Machinery, C50 (chairman since 1947); Sectional Committee on Transformers, C57 (secretary, 1933-1952; chairman, subcommittee on recommendations to IEC); Subcommittee on Rotating Machine Definitions, Sectional Committee C42 (chairman 1947 to date). He also has a voice in all decisions on American Standards as a member of ASA's Standards Council and Board of Review, and as a member of the Electrical Standards Board and its Executive Committee.

Mr Paxton's activity in international standardization started in the mid-twenties. As Secretary of the Advisors on Rating to the U. S. National Committee of the International Electrotechnical Commission, he formulated many of the U. S. proposals on IEC Standards for Rotating Machines and Transformers. He is now Technical Advisor on Rotating Machines to the U. S. National Committee of IEC, and member of the USNC and its Executive Committee.

The Fifth National Standardization Conference

PRELIMINARY plans for the Fifth National Conference on Standards indicate that safety, international standards, purchasing, quality control, and color television will be featured. The Thirty-sixth Annual Meeting of the American Standards Association will be held on the first day.

Roger E. Gay, president of the Bristol Brass Corporation, and president of the American Standards Association, will give the keynote address of the Conference at the Association's annual meeting Monday morning, November 15.

The safety session Monday afternoon will be sponsored by the American Society of Safety Engineers. Also scheduled for Monday afternoon is a session on International Standards sponsored by the U.S. National Committee of the International Electrotechnical Commission. This will feature a report of the Fiftieth Anniversary celebration which will have been held two months earlier — in September.

Two sessions will run simultaneously on Tuesday, November 16: — The all day session, sponsored by the Company Member Conference and the Committee on Standardization of the National Association of Purchasing Agents; and the Quality Control Session sponsored by the Metropolitan Section of the American Society for Quality Control.

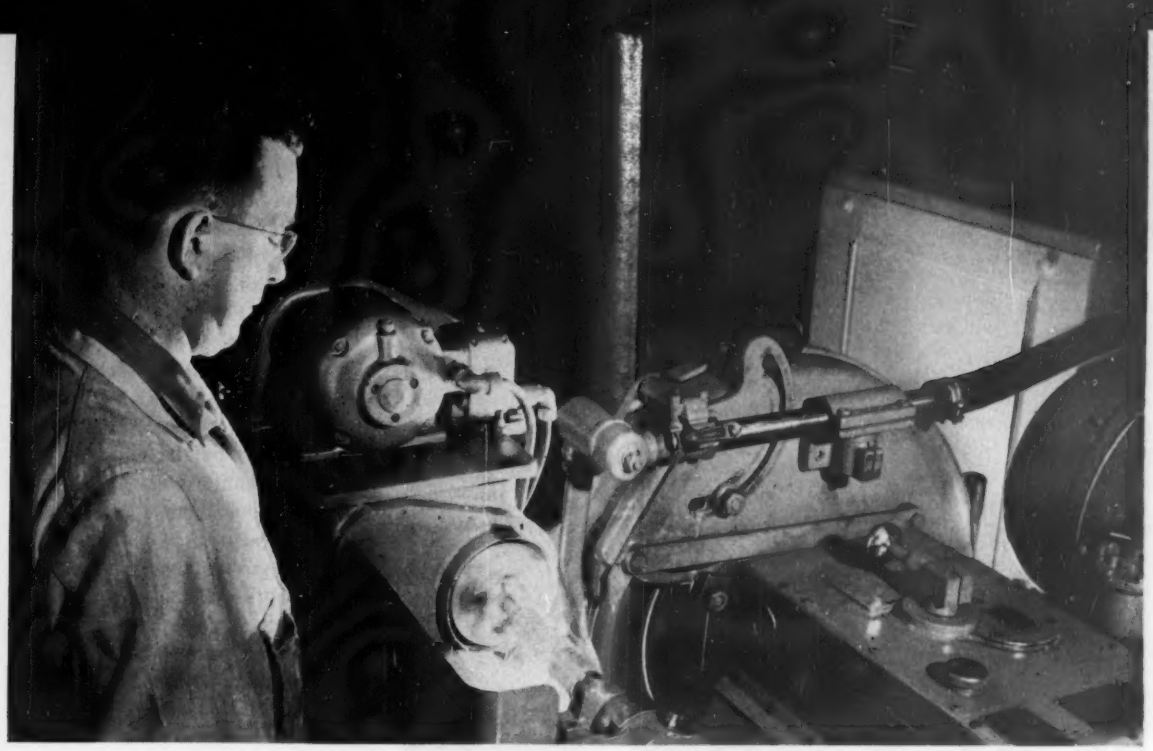
Color Television will be the subject of a session sponsored by the Radio-Electronics-Television Manufacturers Association Wednesday morning, November 17.

The Howard Coonley Medal and the Standards Medal will be presented at the Annual Award Luncheon in the Grand Ballroom of the Hotel Roosevelt, Wednesday noon, November 17.

Other features of special interest are being planned by the Program Committee and will be announced later.

Place —
Hotel Roosevelt, New York

Time —
November 15, 16, 17



Norton

Traverse *grinding a shaft in a plain cylindrical grinding machine*

What New Grinding Machine Standards Mean to the Shop

by JOHN HAYDOCK

DESIGNATIONS and working ranges of machine tools" is the somewhat formidable description of the aims of Technical Committee No. 6 which operates as part of Sectional Committee B5 on the "Standardization of Small Tools and Machine Tool Elements." TC 6 differs from its companion technical committees. It is not concerned with small tools such as drills, reamers, or taps, nor with machine elements such as spindle noses, T-slots, and machine tapers. It deals with machine tools as complete units of shop equipment.

"Designations" in the committee's title means simply calling a spade a spade and defining what is meant by a spade. This seems elementary, but the fact is that designations have grown with the machine tool industry and they are far from uniform. Engine lathes, to use a convenient example, have been rated by bed length and by the distance between centers. Certain types of machine tools have been given arbitrary numbers to indicate size. TC 6's objective is to get the same names to mean the same thing.

Closely tied in with designations are working ranges which may be defined as the ability of a machine tool to accommodate and operate upon a certain size of workpiece. Working ranges include the work-receiving surfaces of machine tools, such as tables and face plates, and the possible adjustments between work surfaces and cutting tools that limit the machine tool's capacity.

With working ranges standardized, the user is assured that he can route workpieces through his shop and know that machine tools with certain designations will have the capacity to perform specified operations upon them. Such standardization will simplify the problem of loading the various machining departments since it will eliminate the need for recording and allowing for dimensional variation between machine tools supplied by different makers. It will aid the foreman in assigning jobs to the machines in his department.

Standardization will also help the machine tool builder since it will enable him to concentrate on improving his products along lines of true productive ability. Stretching the capacities of smaller sizes by "raising" or other means will no longer be a consideration except where such machines are ordered and supplied as special equipment.

The inevitable question will arise: "Won't these standards cramp the designer's style by putting rigid limitations on his efforts?" No more than

---

Mr Haydock is editor of Metal Working *and is chairman of Technical Committee No. 6 of Sectional Committee B5 on Small Tools and Machine Tool Elements. This committee is sponsored by the Metal Cutting Tool Institute, the National Machine Tool Builders Association, the Society of Automotive Engineers, and the American Society of Mechanical Engineers.*

Norton

Cylindrical machine *grinding American Standard type milling machine arbors*

a shoe manufacturer is limited in styling a 9½C shoe. In both cases, the designer has a wide field of flexibility. And in both instances, the size designation saves his time in addition to aiding the user.

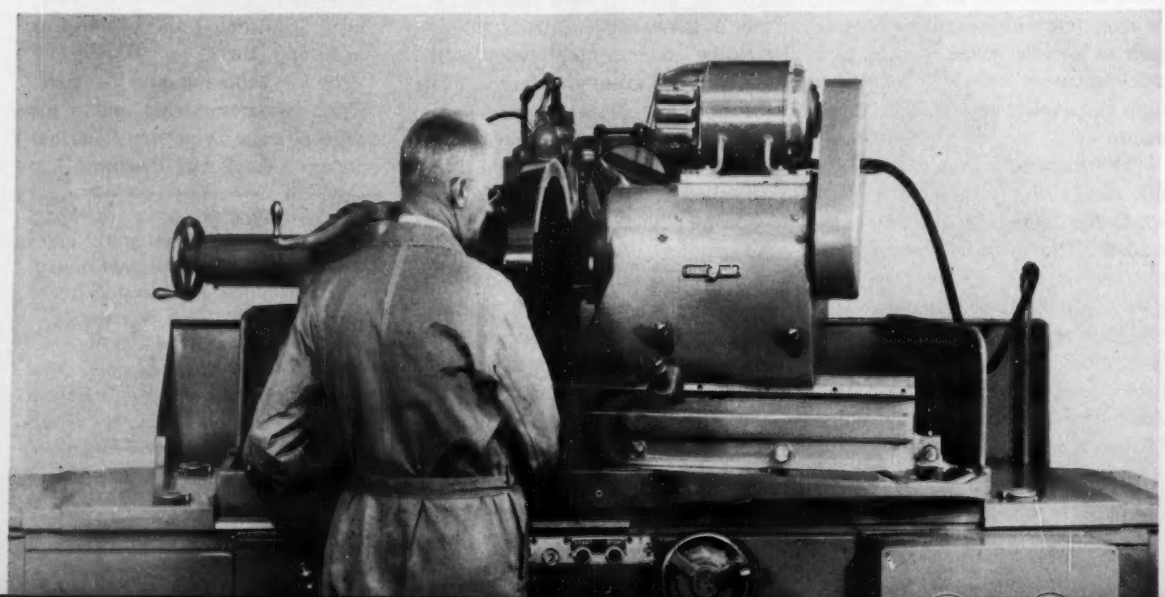
The activities of TC 6 do not cover such factors as quality, durability, rigidity, feeds, and speeds, nor the many elements that make machine tools operate more quickly and conveniently. The committee has been careful not to usurp the field of competitive design. Manufacturers will still have a wide range for the employment of inventiveness in their development of better products.

The occasion for the above discussion is the recent approval, as American Standards, of Designation and Working Ranges of Grinding Machines of the Horizontal Reciprocating Table Type, ASA B5.32-1953, and of Plain Cylindrical Grinding Machines, ASA B5.33-1953. These standards were agreed upon after some years of work by the committee. However, the committee was greatly aided by the efforts of the Group Committees of the National Machine Tool Builders' Association. It should be pointed out that other NMTBA groups have done some excellent work on many types of machine tools. It is the purpose of TC 6 to carry on their progress rather than to duplicate or replace it. Obviously the wholehearted cooperation of machine tool builders is essential to give meaning to these standards. TC 6 supplements work of NMTBA groups by bringing in the user viewpoint and by processing the joint achievements to the point of approval as American Standards.

Copies of these American Standards can be obtained from the American Standards Association, or from the publisher (the American Society of Mechanical Engineers). Complete titles and prices are American Standard Designation and Working Ranges of Surface Grinding Machines of the Reciprocal Table Type, B5.32-1953, $1.00; American Standard Designation and Working Ranges of Plain Cylindrical Grinding Machines, B5.33-1953, $1.00.

Table type *of grinding machine covered by American Standard B5.32-1953*

Cincinnati



Standards Urged to Help European Economy

Hammond Map Co

PLANS for improving trade and bettering the economic condition of European countries include standardization as an important factor. Two documents, issued recently, point to the interest Europeans are taking in bringing about closer uniformity in standards of the different countries.

One is the report of a Mission sent to the United States under the auspices of the Organization for European Economic Cooperation (OEEC) and the Mutual Security Administration in 1952. Its purpose was to study standardization in the United States. Almost all members of the Mission attended the meetings of the International Organization for Standardization in New York in June of that year.

The second recently issued document is a statement of policy by OEEC recommending unification of technical specifications and application of standardization as a useful contribution to development of trade. OEEC urges its member countries to encourage national and international action "to adjust differences in national regulations and technical standards which prevent equipment and apparatus manufactured and officially tested in one country from being used in another."

As a means of carrying out such a policy, OEEC recommends that member countries facilitate the work of the International Organization for Standardization, the Provisional International Metrology Committee, and the European Committee of the Sheet Metal Working Industry. Specifically, OEEC urges that representatives help speed the development of international recommendations on the following: Components and accessories for motor vehicles; valves, fittings, taps, joints, and all equipment used to control the flow of liquids; boilers; high and low pressure vessels; weighing instruments; and equipment for measuring the flow of liquids. It also suggests a study to determine whether international cooperation is possible on regulations for safety of certain handling equipment, on official tests for agricultural machinery, and on construction of bridges and metal work.

The OEEC Machinery Committee and the Productivity and Applied Research Committee are to submit a report as soon as progress has been made toward removing the "hindrances to international trade caused by lack of coordination of national technical regulations covering the equipment mentioned."

The report of the 1952 standardization Mission[1] calls attention to differences in the methods and philosophy of American and European engineers and industries.

American engineers have a strictly practical approach to their work, the Mission found, and although they are fully alive to the benefits of standardization they have no compunction in disregarding it if they do not believe it would benefit the particular work they have in hand.

From this, members of the Mission have concluded that in the conditions of free and unfettered competition that prevail in the United States the tendency of manufacturers is "to pay less attention to principles which are of long-term benefit to industry as a whole, and more to factors which may find a ready market, even if a relatively restricted one." Members of the Mission were surprised to find quite large manufacturing plants in some cases entirely dependent on the manufacture of nonstandard articles and even nonstandard tools.

"This was a useful reminder," the report comments, "that standardization should not be regarded as an end in itself; that it is a means to an end with its own limitations."

Another difference which surprised the Mission was the relation

[1] *Some Aspects of Standardization in the USA and Europe, OEEC Mission, Publication Office, 2002 P St, N.W., Washington 6, D.C. $1.00.*

of the American Standards Association with the Federal Government. They considered it unusual that the Government does not contribute financial support to ASA. In all countries the Government is one of the greatest beneficiaries from standardization, the report comments. Some of the reasons given for this interest are evidence of the difference in the thinking of Americans and Europeans. They are outlined as: First, Government is one of the largest consumers of industrial products, and, therefore, has a large direct interest in standards. Second, "it is generally considered to be one of the duties of Government to promote and encourage activities that increase the efficiency of manufacture; and at the present time, when whole nations are absolutely dependent on maintaining their manufacturing efficiency in a competitive economic struggle for survival, no one in the European countries would question this duty." Third, Government has a particular interest because basic standardization, particularly in the field of engineering, is of the utmost importance in ensuring the efficiency and regularity of supply of military equipment. Fourth, Government has a special interest in standards in view of its responsibility for the general consumer interest.

For these reasons, the report declares, Government contributes an appreciable proportion of the funds of many European national standardizing bodies. Nevertheless, these are, it explains, completely autonomous bodies in which representatives of Government take no greater share in their direction than the representatives of manufacturers, consumers, and technical and trade interests.

Members of the Mission had the greatest difficulty in convincing Americans with whom they discussed these matters that such an arrangemetn is possible, the report points out, and comments: "It appears to be a general assumption in the United States that if the Government has any financial interest in any nongovernmental body, such an arrangement would imply political interference on the one hand, or an unfair discrimination on the other."

American standards work presents a complex picture because there are such a large number of organizations in the United States that are directly engaged in the preparation of standards. The size of the American industries and their widely dispersed field of activity, as well as the country's size and its Federal structure, have encouraged these organizations to continue as separate units, according to the Mission's analysis.

"The necessity of the coordinating work of the ASA has never been challenged," the report comments, "but much standardization of a national character still remains in the hands of individual bodies, and the position of the ASA has been somewhat weakened by the withdrawal of direct Government participation."

One of the characteristics of a standards man is his patience. He knows that standardization should not and cannot be forced; that standards are worthless unless they are voluntarily accepted; and that acceptance is something that cannot be hurried. — Vice Admiral G. F. Hussey, Jr, (USN, ret), Managing Director, American Standards Association.

Being especially concerned with international standardization, members of the Mission found that the empirical view of standardization taken so widely by American industry is unfavorable to international work. In certain cases, American influence is inescapable even if the United States is absent from the conference table, they point out. However, there is a long tradition of scientific rationality in the approach of most European countries to standardization work, and they are generally very reluctant to accept as an international standard anything based merely on preponderance of usage, particularly in one country, at any given moment.

In the opinion of the Mission, the welfare of U.S. industry itself may be at stake. "If the United States becomes in the future a major exporting nation on a normal commercial basis," the report comments, "when Europe has recovered her own economic strength and no longer has to depend on American aid, it would be a disadvantage to her if international standards accepted by European countries differ from American Standards in many essential respects."

The report concludes that:

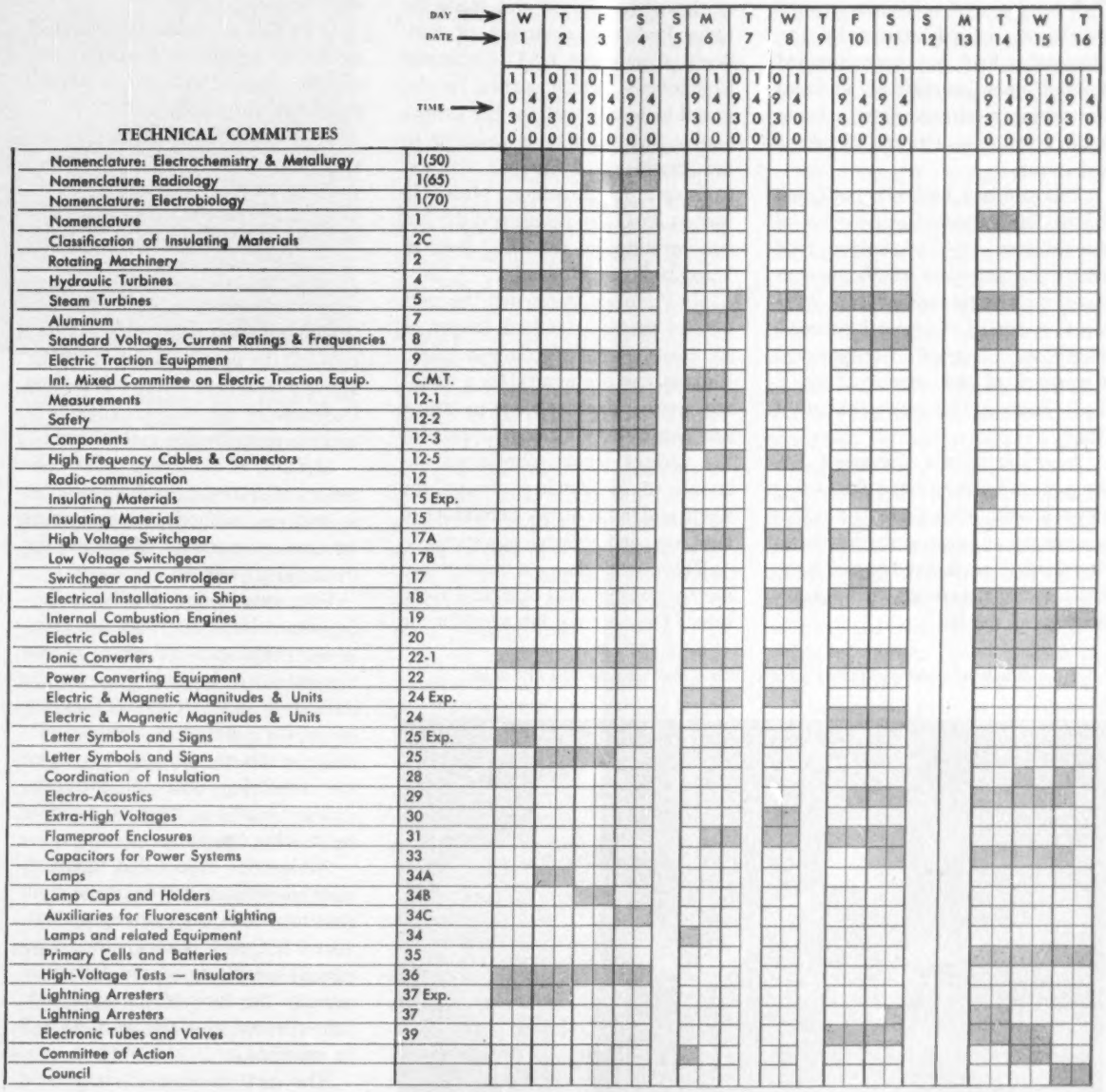
"The application of standards in the United States is widespread but by no means consistent. American industry rightly regards standardization as a tool, not an end in itself. But it also tends to take a more direct attitude to its evaluation than is customary in Europe and thus to pay little attention to long-term advantages of standardization on a broad basis, such as international standardization, if no immediate concrete advantages can be seen. The Mission, however, believes that it will more and more be considered in America that it is of great economic importance to the United States to take its full part in international standardization and that the trend of thought is now in this direction.

"At the present time, while the United States can safely be left to judge the value to itself of greater coordination in national standardization and fuller cooperation in international standardization, the Mission would wish to emphasize the inestimable value this would have to European countries represented in the OEEC."

The report not only analyses the over-all operation of standardization in the United States; it also includes reports of special studies made by members of the Mission on machine tools, screw threads, ball and roller bearings, textiles, petroleum and cinematography.

To round out the picture, it includes as annexes, a list of standardizing agencies in the United States; a description of the standardization operations of two important American associations (the National Electrical Manufacturers Association and the American Society for Testing Materials), and data on standardization as it is carried out in European countries.

Technical Committee Meetings During *IEC's Fiftieth Anniversary*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TECHNICAL COMMITTEES
Nomenclature: Electrochemistry & Metallurgy 1(50)
Nomenclature: Radiology 1(65)
Nomenclature: Electrobiology 1(70)
Nomenclature 1
Classification of Insulating Materials 2C
Rotating Machinery 2
Hydraulic Turbines 4
Steam Turbines 5
Aluminum 7
Standard Voltages, Current Ratings & Frequencies 8
Electric Traction Equipment 9
Int. Mixed Committee on Electric Traction Equip. C.M.T.
Measurements 12-1
Safety 12-2
Components 12-3
High Frequency Cables & Connectors 12-5
Radio-communication 12
Insulating Materials 15 Exp.
Insulating Materials 15
High Voltage Switchgear 17A
Low Voltage Switchgear 17B
Switchgear and Controlgear 17
Electrical Installations in Ships 18
Internal Combustion Engines 19
Electric Cables 20
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Electric & Magnetic Magnitudes & Units 24
Letter Symbols and Signs 25 Exp.
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Lamps and related Equipment 34
Primary Cells and Batteries 35
High-Voltage Tests — Insulators 36
Lightning Arresters 37 Exp.
Lightning Arresters 37
Electronic Tubes and Valves 39
Committee of Action
Council

Preliminary reports *indicate that 45 technical groups will meet during the 16 days of the International Electrotechnical Commission's Fiftieth Anniversary at Philadelphia, September 1-16. The schedule above shows the technical committee meetings that are being held in Philadelphia and their meeting dates.*

Special events include a welcoming reception September 2; a visit to Longwood Gardens September 7; and a weekend trip to Washington, D. C. This will include a visit to the National Bureau of Standards and a luncheon with officials of the United States Government. Jubilee Day, September 9, is an all-day celebration commemorating the 50 years of IEC, culminating in the Golden Jubilee Banquet. Technical trips and plant visits are also being scheduled to manufacturing plants, laboratories, electrical installations, and other points of interest.

As of April 26, some 192 delegates from 13 countries other than USA had registered for the meetings. Countries represented were Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom.

Tests for Electronic Parts Receive International Approval

WHAT U.S. scientists consider a decisive advance toward world standardization in the electronics field has been attained through a new international standard for testing electronic parts used in radio communication and electronic apparatus.

The standard has been published by the International Electrotechnical Commission (IEC), composed of national committees of 30 member nations. It represents several years work by an IEC Technical Subcommittee on Electronic Components. Chairman of the subcommittee is E. F. Seaman, U.S. Navy Bureau of Ships.

Approval of the document has been given by the United States National Committee of the IEC. This committee, an organ of the American Standards Association, represents the U.S. electrical industry in the deliberations of the IEC.

Announcement of U.S. approval of the new standard was made by Leon Podolsky, chairman of Sectional Committee C83, Electronic Components, which carried on the actual technical work for the United States. Mr Podolsky is assistant to the President of Sprague Electric Company, North Adams, Mass. He was an American delegate at the last two meetings of the IEC, held in Yugoslavia and Holland.

Mr Podolsky states that the purpose of the new standard, known as an International Recommendation, is to meet an urgent need for a standard international language in testing and rating electronic components for the various service conditions encountered in climates around the world and in the service conditions of land, sea, and airborne apparatus.

Recommendations of the standard are for conventional electrical apparatus. They are not intended for the military where unusual conditions must be met.

The 52-page standard is identified as "Publication 68 — Basic Climatic and Mechanical Robustness Testing Procedure for Components."

Tests described in the publication cover four fields. There are tests for:

Dry cold, dry heat, damp heat

Bumping (mechanical shock), and vibration (both resonance search and fatigue)

Mold growth, salt mist, and dust

Low air pressure, rapid change of temperature and immersion.

Combination tests, such as dry cold and dry heat including bumping, are also described where it is desired to determine the combined effects of various performance conditions.

Methods of achieving stable conditions of relative humidity are given as well as methods for preparing aqueous suspensions of spores for the mold growth test.

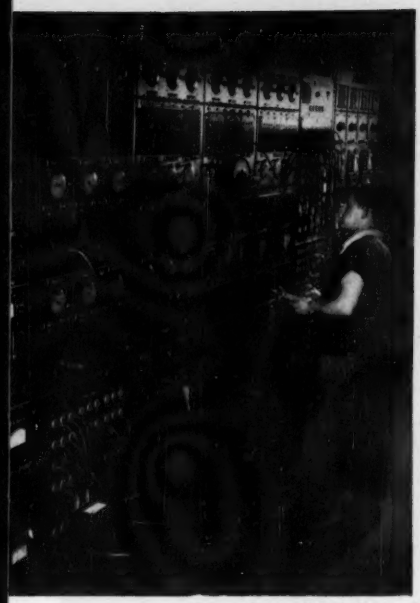
Full construction details, including dimensional drawings, are given in the publication for pieces of test apparatus which would otherwise be difficult to duplicate between laboratories; for example, a bumping machine, a salt mist chamber, a device for measuring dust concentration, and an insulated thermal chamber for making combination tests.

Authorities expect that modifications in the tests will be made from time to time to meet new conditions. As the IEC develops individual component specifications, the degrees of severity for each of the applicable tests covered by Publication 68 will be specified.

The new electronics component standard is one of 30 International Recommendations that have been published by IEC. These are recognized by all members as expressing, as nearly as possible, an international consensus on the subjects dealt with. Each country undertakes to make every effort to harmonize its national electrical standards with the recommendations insofar as national conditions permit.

Electronic parts *undergo tests to check their reaction to dry cold*

Courtesy Sprague Electric Company



Courtesy Sprague Electric Company

This panel controls *power supply and timing when tests check life of electronic parts under dry heat conditions*

The first of these International Recommendations concerned electrical symbols and was passed in 1914. Some of the other Recommendations cover electronic tubes, tube sockets, resistors, capacitors, volume controls, in the radio and electronics field, and standards for a wide variety of apparatus in the power field.

During World War II a bomb hit a London printing plant and destroyed the type and complete stock of six of the early Recommendations. Although they are out of print, they are still in use.

International Recommendations now being developed will be considered by IEC's 38 technical committees when they attend the fiftieth anniversary meeting of IEC on the campus of the University of Pennsylvania in Philadelphia, September 1 to 16. The discussion will cover the entire field of electric light, power, and communications. About 300 of the 700 electrical technical experts who are expected to attend will come from other countries.

The IEC was founded in St. Louis in 1904 with Lord Kelvin of England as its first president. President today is Dr Harold S. Osborne, former chief engineer of the American Telephone and Telegraph Company.

New Standard for Buttress Threads

THE first American Standard for buttress threads came off the press early this year. This type of thread has certain advantages in applications involving exceptionally high stresses in one direction only — along the thread axis. It was so little used, however, that from the time it was first described in 1888 until after the American-British-Canadian conference in 1943, no standardization was undertaken for it. Each application of the buttress thread was treated individually and the form it took depended on the experience of the designer and the manufacturing equipment available.

The thrust side of this type of thread is made very nearly perpendicular to the thread axis; therefore, the radial component of the thrust is reduced to a minimum. Because of the small radial thrust, this form of thread is particularly applicable where tubular members are screwed together; for example, in the breech mechanisms of large guns and airplane propeller hubs.

In the new American Standard, manufacture by the thread milling or grinding processes has been taken into consideration in selecting the form of thread recommended as standard. The document provides a standard form of thread; tables of preferred diameters and preferred pitches; a formula for calculating pitch (effective) diameter tolerances; tolerances for major and minor diameters; a system of allowances between mating parts; and recommended methods of gaging.

It does not include a recommended diameter-pitch series because the use of buttress threads applies mainly to specially designed components and it has been considered that such a series would serve no useful purpose.

The thread engagement depth used in this standard is 0.6 pitch. Recognizing that the applications for buttress threads are extremely varied, the committee included appendices in the standard giving the essential details of the British Standard. This uses a thread engagement depth of 0.4 pitch. Work on a standard for buttress threads was started at the American-British-Canadian Conference in 1943 when it was agreed to establish a basic profile. Accord was reached at a conference in Ottawa, Canada, in 1945, on preferred diameters and pitches, thread dimension tolerances and allowances, and other details.

The subject was assigned to Subcommittee 3 of Sectional Committee B1 on Standardization and Unification of Screw Threads in 1946. This subcommittee prepared a proposed standard based on the British proposal with a basic thread depth of 0.4 pitch. However, so many objections to the shallow depth of thread were received that the next draft was based on a thread having a 0.6 pitch engagement depth. Both the British Standard 1657:1950 (based on a thread engagement depth of 0.4 pitch) and the American draft based on 0.6 pitch were reviewed at an American-British-Canadian Conference called at the request of the Director of Defense Mobilization in June 1952. It was concluded that the applications for buttress threads are so varied that threads with either engagement depth (0.4 pitch or 0.6 pitch) might be preferred for particular design requirements. Hence, it was agreed to include the essential details of the other countries' standard in the next published edition of both the American Standard and the British Standard.

Appendices in the American Standard for Buttress Threads include: Appendix A — Symbols and Formulas; Appendix B, Pitch Diameter Equivalents for Pitch and Angle Errors; Appendix C, Pitch Diameter Measurement; Appendix D, Notes on Corresponding British Standard.

Sponsors of Sectional Committee B1 on Standardization and Unification of Screw Threads are the American Society of Mechanical Engineers and the Society of Automotive Engineers. Copies of American Standard B1.9-1953, Buttress Screw Threads, are available at $1.50.

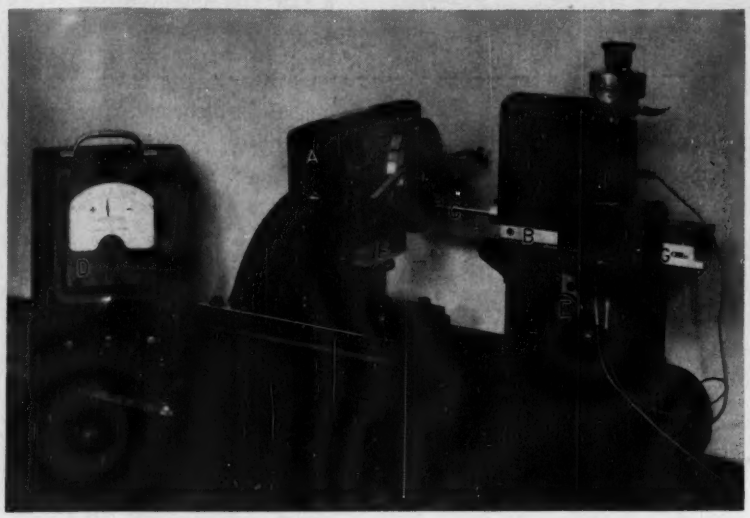
New Method for Checking Screw Threads

THE National Bureau of Standards has just announced a new method for measuring the pitch, or lead, of internal screw threads. The new method can be used at the same time to determine the taper of ring gages, the NBS announces. The method was developed by C. E. Haven and is used by the Bureau in connection with calibration of the master thread gages used by the petroleum industry in calibrating its working standards. This work is done by the Bureau in connection with the program of the American Petroleum Institute for standardization of the thread connections in oil field equipment.

The Bureau states that the new technique is rapid and permits measurement of the thread pitch without a sacrifice of the high accuracy required in this work. For straight-thread ring gages, the technique has the added advantage that straightness of the bore can be determined simultaneously with the lead, thus providing a quick assessment of the amount of wear at the ends of the gage.

The Bureau calibrates the master thread gages used by the petroleum industry through the use of thread-measuring instruments the calibration of which is ultimately based on the national standard of length maintained by the Bureau. Because the standardized API threaded joints cover such an extensive range of sizes — ⅛ to 20 inches in diameter and up to 6 inches of threaded length — the measurement of some elements of the threads is beyond the range of commercially available measuring equipment, and the National Bureau of Standards and the manufacturers of API gages have had to design special equipment for this purpose. Until now, NBS equipment for determination of lead has required the use of two series of equal combinations of gage blocks for measurement of the intervals, and the procedure involved has been rather time-consuming, NBS explains.

The more rapid method just developed for measuring pitch, or lead, makes use of a taper testing machine constructed by Pratt and Whitney Division of Niles-Bement-Pond Co. This device consists primarily of an adjustable sine plate on which the gage to be tested is mounted, and a carriage which travels on acurately machined ways to move a ball-point probe in and out of the mounted gage. When the angle between the sine plate and a normal to the plane of the ways is equal to one-half the taper angle of the gage under test, the pitch line at the bottom of the gage (provided the taper of the gage is straight) will be parallel to the ways. As the carriage moves along the ways, the small ball on the end of the probe contacts the flanks of the threads in the ring gage. If the taper of the gage is true, the ball will remain at the same elevation above the ways as the probe moves from thread to thread. Variations in the elevation of the probe, caused by errors in taper, are read on an electrically actuated meter.



National Bureau of Standards

Pitch and taper *of internal screw threads are measured simultaneously by the National Bureau of Standards with this equipment. The thread gage under test is shown clamped against a sine plate (A). The carriage (B) moves the ball-point probe (C) in and out of the mounted ring gage. As the ball on the end of the probe contacts the flanks of the threads in the ring gage, the vertical motion of the probe is indicated on the meter (D). By inserting the probe in a sufficient number of threads, deviations in the line of taper can be determined. At the same time, pitch can be measured by sighting the microscope (H) on a glass scale (G) placed in close proximity to the ways of the carriage. The carriage support can be adjusted laterally by a screw (E), and the ring gage can be centered on the sine plate by means of the adjustable V-block (F).*

The National Bureau of Standards has extended this procedure to permit use of the same settings of the probe to determine lead as well as taper. The NBS method for lead determination involves measurement of the movement of the carriage through the use of a glass scale graduated in increments of 0.050 inch over a range of 4 inches. The glass scale moves with the carriage, and the position of the scale is observed with a microscope having four reticle graduations, each equivalent to 0.01 inch on the scale. A scale graduation is brought into apparent coincidence with the nearest reticle graduation by rotating a plane parallel plate of optical glass in the optical path of the microscope.[1] This parallel plate constitutes a kind of "optical micrometer," that is, the

[1] A measuring device manufactured by Hilger and Watts Ltd. (London) is used.

shaft on which it rotates carries a graduated drum having 200 divisions for each 0.01 inch of apparent motion of a scale graduation. This gives a least reading of 0.00005 inch, and permits estimation of fifths of divisions. The scale is accurate to ± 0.00002 inch in one inch and ± 0.00004 inch in four inches.

For accurate measurement of lead, the motion of the carriage must be substantially free from friction. This is accomplished by having the carriage roll on ¼-inch steel balls located in suitable guides. The lower surfaces of these guides are formed by two parallel V-grooves, approximately 3¼ inches apart, running along the entire upper surface of the base on which the carriage travels. The corresponding upper surfaces of the two guides are formed by a single V-groove and a flat surface which run along the under side of the carriage. By viewing a mirror mounted on the carriage with an autocollimating telescope, it is possible to determine deviations from linear motion of the carriage quite accurately and to make such adjustments of the ways as are necessary to obtain practically straight-line motion of the carriage.

The modified instrument has proved highly satisfactory at NBS for rapid, accurate measurement of the lead of both straight-thread and tapered ring gages. Special probes have been used for measurement of very small thread ring gages. The instrument has also been used to measure the lead of thread plug gages up to 3 inches in diameter. In general, the repeatability of the readings has been found to be as good as the precision with which the scale can be read, that is, between 0.00001 and 0.00002 inch.

• • **Standards in Iceland.** — One of the functions of the recently established Institutions of Icelandic Industries is responsibility for standards. In carrying out these functions the Institution is collecting standards in effect in other countries and establishing working relations with other national standards bodies. ASA has offered its cooperation. The Institution's headquarters are in Reykjavik.

Horace Marshall Lawrence

THE death of Horace Lawrence was a sad blow to the American Standards Association and to the many friends he had made during the 23 years he had worked with ASA. Mr Lawrence died, following an illness of several weeks, at Holy Name Hospital, Teaneck, New Jersey, on April 6. He was 64 years of age.

He had been in charge of all ASA's work on building codes, materials of all kinds, mining, petroleum products and lubricants, and plumbing. Because of his work with materials, he also served as ASA's liaison with the American Society for Testing Materials.

Every member of the ASA staff — from those who had worked with him for the entire 23 years he was with ASA to those who only recently joined the staff — had a warm affection for him. Many staff members over the years have taken their personal problems to him for the advice he gave with grave and kindly thoughtfulness. All on the staff knew him to be a person to be trusted. His sincerity and open-hearted interest in others endeared him not only to ASA staff members but to all with whom he came in contact. Because of this and his selfless and conscientious service, he made a notable contribution to standardization. The part he played in securing agreement among divergent viewpoints has many times been of vital importance in advancing the standard with which he was concerned.

Although he came to ASA in 1931 to take charge of projects on mining, chemicals, and ferrous and nonferrous metallurgy, his activities were soon expanded to include building codes and materials. Before his death this field had grown to the point where building projects were monopolizing a large part of his time, and he had become recognized as a national authority on the subject. He was active in the work of the Joint Committee on Building Codes, and served as chairman of its Committee on Definitions. He was also a member of its subcommittee on Exit Requirements. He represented ASA in work with the Building Officials Conference of America and was widely known in the plumbing and water supply fields through his work with the National Plumbing Code.

Born in Lawrence, Massachusetts, in 1889, Horace Marshall Lawrence was graduated from the Massachusetts Institute of Technology in 1913, with the degree of Bachelor of Science. From that time until he joined the staff of ASA he worked in mining and metallurgical engineering across almost the entire North American continent — in Alaska, British Columbia, Montana, Idaho, Utah, Nevada, Missouri, Virginia, Tennessee, and New York. He was known in this field for his achievements in the ore concentration process, including ammonia leaching and flotation.

Mr Lawrence was married in Alaska in 1918 to Alice F. McDonald. They had three children — Robert M., Donald R., and Martha F. — of whom he was very proud. Robert is a physician; Donald a lawyer; and Martha is married and mother of a small son.

Mr Lawrence was author of articles for the technical press and contributed research pamphlets to the construction and mining fields. He was a member of the American Institute of Mining and Metallurgical Engineers, and a registered professional engineer in the State of New York.

All who knew Horace Lawrence will miss him sadly. In his going we have lost a valued colleague; even more, we have lost a warm personal friend.

G. F. Hussey, Jr

Announcing New Books . . . .

• **Product Engineering, Annual Handbook of Product Design for 1954.** McGraw Hill Publishing Company, 330 W. 42nd St, New York 36, N. Y. Single copies $2.00 in USA, $4.00 elsewhere.

This is the second annual report on the most significant design engineering developments, published for subscribers to *Product Engineering*. Individual copies are available to others. The 10 editorial sections cover: A, General Engineering; B, Metals and Alloys; C, Non-Metallic Materials and Finishes; D, Fabrication and Production Processes; E, Power Transmission; F, Mechanical Parts and Design Analysis; G, Fastening and Joining; H, Motors, Engines, and Controls; I, Electrical and Electronic Components; J, Hydraulic and Pneumatic Equipment. Detailed indexes are included, and the entire book is thumb-indexed for easier handling. Because the 1954 edition is designed to be used with the 1953 Handbook, an article index and an editorial subject index to the 1953 Handbook are also included.

"Our editors again have drawn article material from a large and varied array of the world's best technical publications," the introduction explains. These include magazines of many of the technical societies, and papers from many of the important engineering and technical society meetings. Standardization (now The Magazine of Standards), and the American Standards Association are among the sources listed. In addition, the editors attended all important engineering and technical society meetings and kept in touch with the important design engineering centers in collecting material for the *Handbook*. The articles cover such diverse material as radioisotopes — seeing eyes for hidden data; new ideas in composite metals; precision casting of large parts; how the Unified screw thread system will be revised; electrical symbols and standards.

One of the special features is an analysis of "Developments to watch" in each section, covering new developments that are expected to break within the next year or two.

• **Tables of Circular and Hyperbolic Sines and Cosines for Radian Arguments. National Bureau of Standards Applied Mathematics Series 36.** Buckram bound (reissues of Mathematical Table 3). 407 pp. $3.00. Order from Government Printing Office, Washington 25, D. C.

These tables have been reissued to meet the continuing demand of scientists and engineers. In announcing the publication, the Bureau declares:

The interval of the argument and the use of radian measure should prove of particular convenience to the user. Specifically these tables contain sin x, cos x, sinh x and cosh x, $x = 0\ (.0001)\ 1.9999$, 9D; sinh x and cosh x, $x = 9\ (.1)10$, 9D; a conversion table of degrees, minutes, seconds <—> radians and a table of multiples of $\pi/2$.

Recent Publications Received from ASA Members

American Society of Heating and Ventilating Engineers

62 Worth Street, New York 13, N. Y.

• **Heating Ventilating Air Conditioning Guide.** 1954. 32nd edition. 6 x 9 in. 1128 pp. Edge Index. Blue cloth cover. $10.00.

New data included cover residential summer air conditioning, recent developments in air and gas cleaning, tables on steam requirements of process equipment, more detailed data on characteristics of pipe and tube. Recent Society research has influenced changes, revisions, and additions to many of the chapters. The ASHVE Psychrometric Chart, 24 x 32 in., printed in two colors, is included.

American Society of Refrigerating Engineers

40 West 40 St, New York 18, N. Y.

• **Methods of Rating and Testing Air Conditioners.** ASRE Std 16-53. $1.00.

Supersedes ASRE Standards 13, Standard Method of Rating and Testing Air Conditioning Equipment; 16, Standard Methods of Rating and Testing Self-Contained Air Conditioning Units for Comfort Cooling; and 16-R, ASRE Standard Methods of Rating and Testing Air Conditioners. Includes the cooling, heating, and other functions of self-contained air conditioners, room air conditioners, remote-type air conditioners, heat pumps, and oil and gas-fired air conditioners.

American Society for Testing Materials

1916 Race Street, Philadelphia 3, Pa.

• **Bibliographical Abstracts of Methods for Analysis of Synthetic Detergents.** 1929 to 1951 SIP 150. Sept 1953. 6 x 9 in. Heavy paper cover. 20 pp. $1.25.

Prepared by Subcommittee T-2 on Analysis of Synthetic Detergents of ASTM Committee D-12, this is a compilation of 96 bibliographical abstracts. The booklet contains subject and author indexes.

• **Papers on Soaps and Other Detergents. 1953.** 8½ x 11 in. Self cover. 25 pp. $0.75.

The first five papers in this pamphlet were presented at the March 1953 meeting of ASTM Committee D-12 on Soaps and Other Detergents and are reprinted from the *ASTM Bulletin*. The sixth paper was added because of its related interest. These papers cover analysis of hard water soap, detergents in dry cleaning, effects of detergents on sewage treatment processes, a dynamic test for detergency of hard surfaces, asphalt tile cleaner specifications, the temperature rise test to determine the relative amounts of Phases I and II in sodium triphosphate.

• **Specifications and Tests for Electrodeposited Metallic Coatings.** 1953. 6 x 9 in. Heavy paper cover. 96 pp. $1.85.

Compiled to bring together in convenient form all of the ASTM specifications and methods of test pertaining to electrodeposited metallic coatings on metals. ASTM Commitee B-8 on Electrodeposited Metallic Coatings and the American Electroplaters' Society jointly prepared the specifications and tests in this edition. The book contains specifications for electrodeposited coatings, methods of testing, and recommended practices.

• **Symposium on Porcelain Enamels and Ceramic Coatings as Engineering Materials. 1954.** 6 x 9. Heavy paper cover. 128 pp. $2.50.

At the 1953 Annual Meeting of the American Society for Testing Materials, Committee C-22 on Porcelain Enamel sponsored a symposium on Porcelain Enamels and Ceramic Coatings as Engineering Materials. Sixteen papers give information on the new meanings of ceramic technology — no longer applying only to pots, pans, and refrigerators but now having a part in faster jet planes with critical burner parts which last longer at high operating temperatures; longer lasting porcelain enamel processing equipment, resistant to alkali as well as acid, and capable of turning out purer chemical products; and ceramic coatings that do for some types of conveying equipment what recapping does for a tire. Titles include: Examples of the Functional Use of Porcelain Enamel and Ceramic Coatings; Resistance of Porcelain Enamels to Weathering; The Chemical Resistance of Glass Fused to Steel; Acid-Resisting Properties of Porcelain Enamels; Requirements for and Expected Benefits from the Application of Coatings to High Temperature Components of a Jet Engine; High Temperature Ceramic Coatings as Applied to Aircraft Power Plants; The Industrial Processing of High-Temperature Ceramic Coatings; A Laboratory Evaluation of Ceramic Coatings for High Temperature Applications; Abrasion Resistance of Various Types of Porcelain Enamel; The Resistance of Porcelain Enamels to Surface Abrasion as Determined by the PEI Test; Torsion Testing as an Aid to the Porcelain Enamel Industry; The Strengthening Effect of Porcelain Enamel on Sheet Iron as Indicated by Bending Tests; Tension Tests of Porcelain Enameled Steels; The Effect of Temperature on the Electrical Resistivity of Several Silicone and Ceramic-Type Coatings; Guideposts in Selecting Porcelain Enamels and Ceramic Coatings.

• **Fifty Years of Paint Testing. 1953.** Heavy paper cover. 52 pp. $1.25.

An historical summary of 50 years of work by ASTM Committee D-1 in the field of paint testing, from 1902 to 1952. Committee D-1 (known in 1902 as Committee E) on Paint, Varnish, Lacquer, and Related Products was organized to undertake this work. The papers and reports in this booklet were presented as a part of the committee's celebration of its fiftieth anniversary in June, 1952.

Portland Cement Association

33 West Grand Avenue, Chicago 10, Ill.

• **Cement and Concrete Reference Book. 1954.** 112 pp. No charge.

A compilation of facts about the history, manufacture, and use of portland cement and concrete.

GOVERNMENT STANDARDS

by Samuel P. Kaidanovsky

State Safety Requirements and the American Standard for Abrasive Wheels

10

Lack of Uniformity in State Safety Codes and Standards

The lack of uniformity in state codes and standards complicates the problem of safety engineers in improving hazardous conditions in their industries; it also makes it difficult for machine manufacturers to design machines and safety devices acceptable to all states. Greater agreement on safety requirements among various states would facilitate the work of safety engineers and equipment manufacturers. For this reason, the Bureau of Labor Standards of the U.S. Department of Labor is making a series of analyses of state safety requirements for various types of industrial equipment. This series is being developed in compliance with a recommendation made by the committee on engineering of the President's Conference on Occupational Safety and in cooperation with state labor departments.

The analysis of safety requirements for abrasive wheels is the fourth in the series. The first was on woodworking machinery (STDZN, March, 1951, p 80); the second was on power presses (STDZN, April, 1952, p 112); the third on rubber mills and calenders (STDZN, October, 1952, p 340).

Such analyses serve to reveal:

(1) How adequately the states handle their safety problems;

(2) How well state regulations cover technical details;

(3) The extent to which state regulations make use of recognized safety standards.

Use of American Standard Safety Code as Criterion for Comparison

In order to determine the adequacy of existing safety requirements for abrasive wheels in the various states, it was necessary, for basis of comparison, to use a nationally recognized and impartial standard. The Bureau of Labor Standards has chosen the American Standard Safety Code for the Use, Care and Protection of Abrasive Wheels, B7.1-1947, as the standard with which the state safety requirements can be compared. Developed by a sectional committee organized under the procedure of the American Standards Association and sponsored by the Grinding Wheel Manufacturers Association and the International Association of Industrial Accident Boards and Commissions, this safety standard was agreed upon by industrial safety equipment manufacturers, safety organizations, users of abrasive wheels, insurance companies, state and governmental departments, and employer and employee groups.

Analysis of State Requirements for Safeguarding Abrasive Wheels

In making its analysis, the Bureau of Labor Standards found there are three types of state requirements to be taken into consideration. These are:

Safety Standard — An advisory standard to be used as a guide — does not have the force of law.

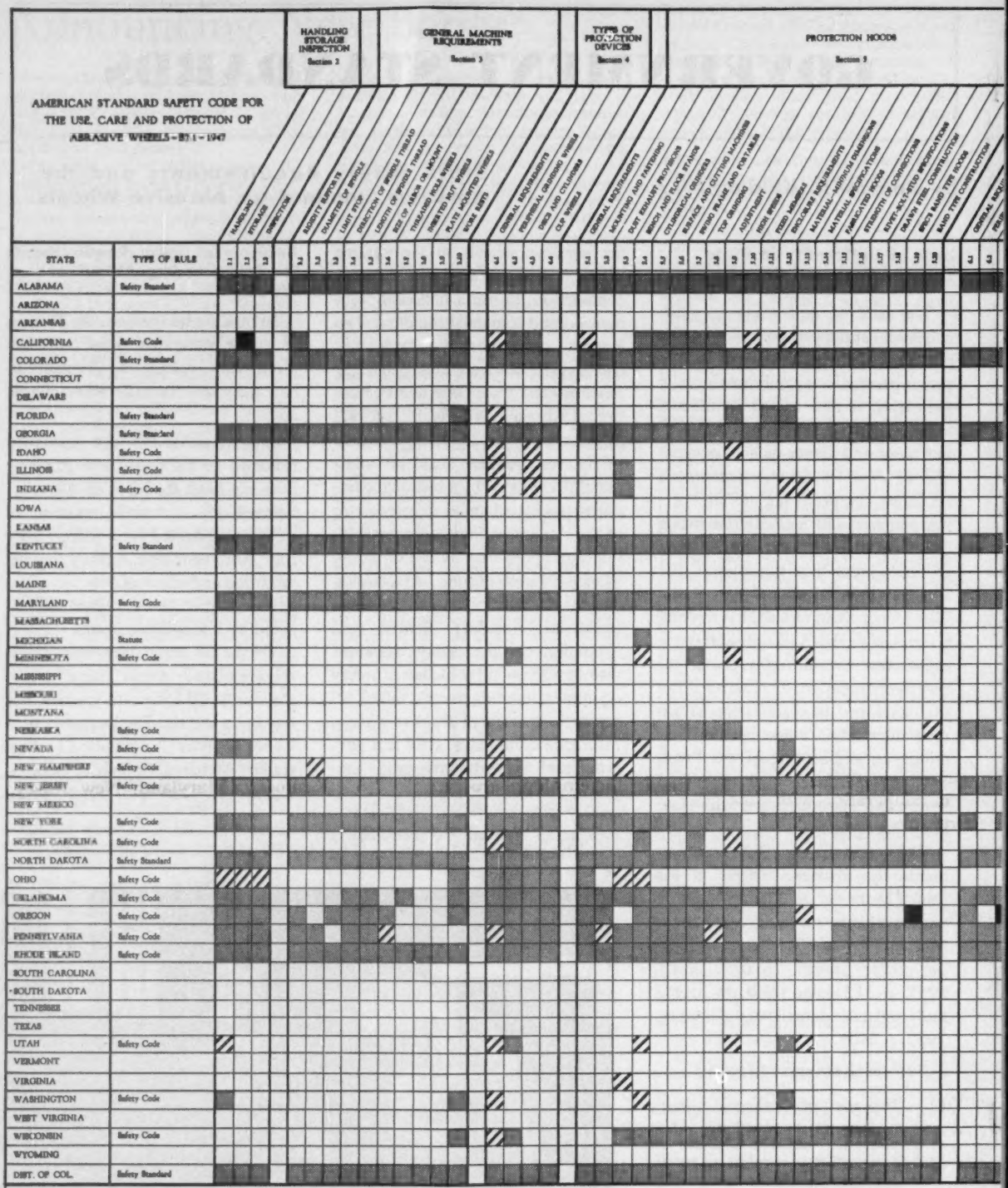
Safety Code — A code, made up of rules promulgated by a State Labor Law Administrative Agency, having the force and effect of law.

Safety Statute — A regulation enacted by a legislative body.

Of the 28 states that have safety requirements, seven have safety standards, 20 have safety codes, and one has a statute. The Department of Labor analysis shows that: (1) Nine states (Alabama, Colorado, Georgia, Kentucky, Maryland, New Jersey,

This wheel *used for rough grinding is protected with guard on floorstand*

Norton Co.


AMERICAN STANDARD SAFETY CODE FOR THE USE, CARE AND PROTECTION OF ABRASIVE WHEELS – B7.1 – 1947
HANDLING STORAGE INSPECTION Section 2
GENERAL MACHINE REQUIREMENTS Section 3
TYPES OF PROTECTION DEVICES Section 4
PROTECTION HOODS Section 5
HANDLING
STORAGE
INSPECTION
MAXIMUM REPORTS
DIAMETER OF SPINDLE
LIMIT STOP
DIRECTION OF SPINDLE THREAD
LENGTH OF SPINDLE THREAD
SIZE OF ARBOR OR MOUNT
THREADED HOLE WHEELS
PLASTIC MOUNTED WHEELS
WORK REST
GENERAL REQUIREMENTS
PERIPHERAL GRINDING WHEELS
DISCS AND CYLINDERS
CUP WHEELS
GENERAL REQUIREMENTS
MOUNTING AND FASTENING
DUST EXHAUST PROVISIONS
WORK AND FLOOR RESTS
CHEMICAL GRINDERS
ENCASE AND CUTTING MACHINES
PWIRL FLAME AND FORTABLES
TOP GRINDERS
ADJUSTABLE
TABLE SPINDLE
FIXED MACHINES
ENCLOSURE REQUIREMENTS
MATERIAL SPECIFICATIONS
FABRICATED HOODS
STRENGTH OF CONNECTIONS
WIRE-REINFORCED SPECIFICATIONS
SHEET STEEL CONSTRUCTION
BENCH AND TYPE HOODS
BAND TYPE CONSTRUCTION
GENERAL REQUIREMENTS
FLOOR STANDS
STATE
TYPE OF RULE
ALABAMA
ARIZONA
ARKANSAS
CALIFORNIA
COLORADO
CONNECTICUT
DELAWARE
FLORIDA
GEORGIA
IDAHO
ILLINOIS
INDIANA
IOWA
KANSAS
KENTUCKY
LOUISIANA
MAINE
MARYLAND
MASSACHUSETTS
MICHIGAN
MINNESOTA
MISSISSIPPI
MISSOURI
MONTANA
NEBRASKA
NEVADA
NEW HAMPSHIRE
NEW JERSEY
NEW MEXICO
NEW YORK
NORTH CAROLINA
NORTH DAKOTA
OHIO
OKLAHOMA
OREGON
PENNSYLVANIA
RHODE ISLAND
SOUTH CAROLINA
SOUTH DAKOTA
TENNESSEE
TEXAS
UTAH
VERMONT
VIRGINIA
WASHINGTON
WEST VIRGINIA
WISCONSIN
WYOMING
DIST. OF COL.
Safety Standard
Safety Code
Safety Standard
Safety Code
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Statute
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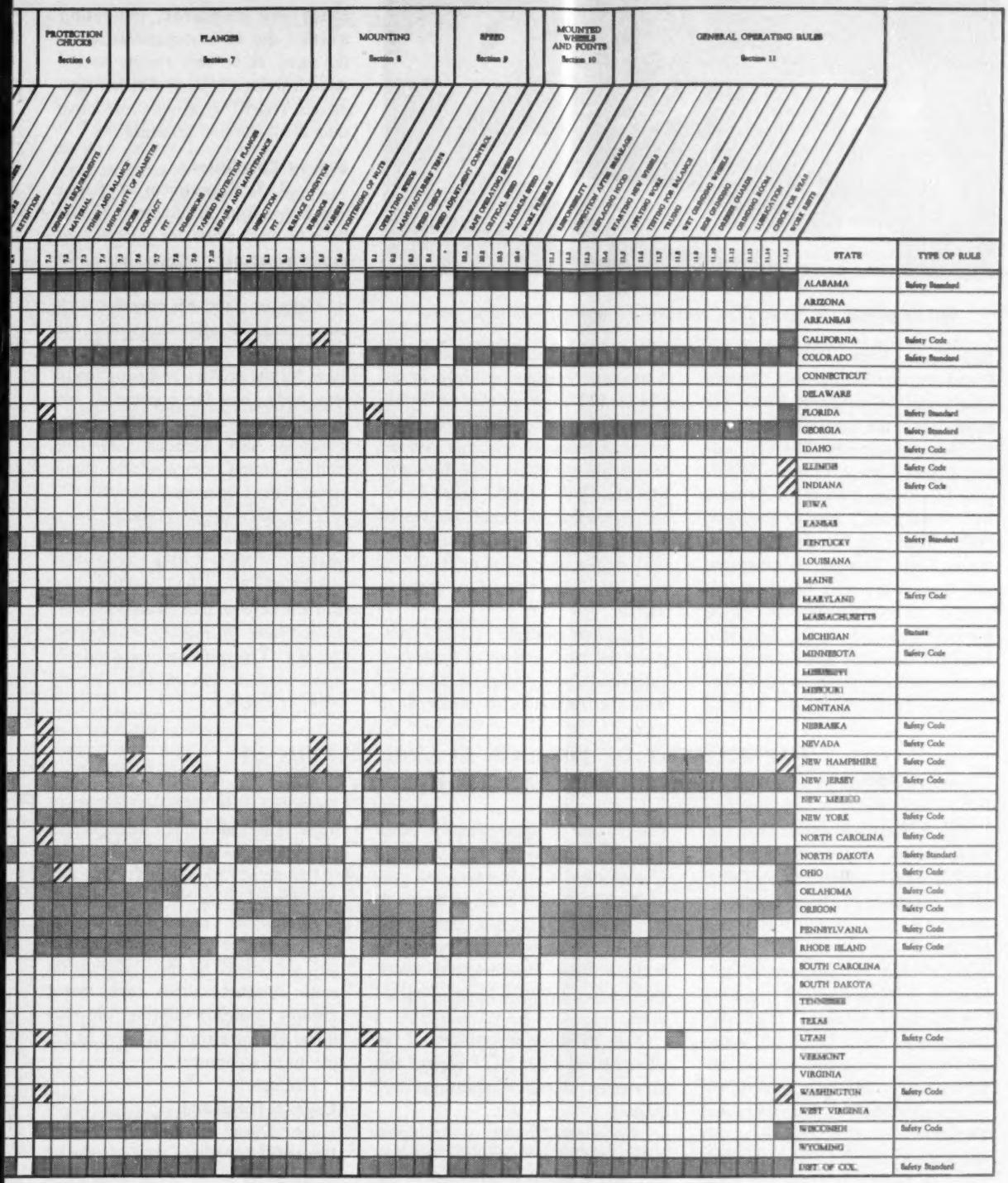


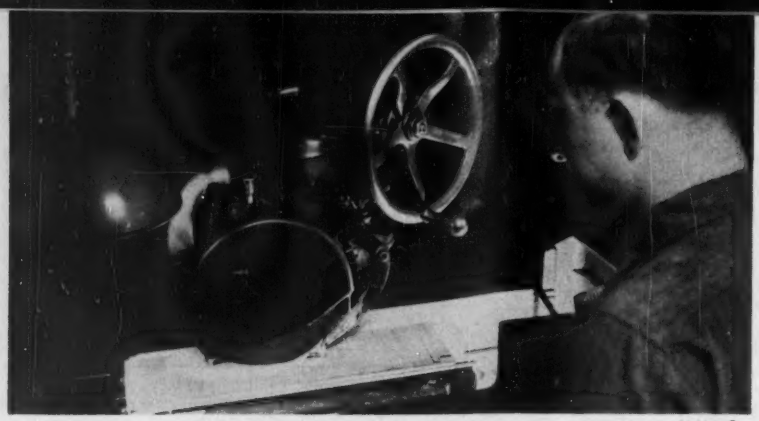
LEGEND

Same as or very similar to ASA Standard

More restrictive than ASA Standard

Less restrictive than ASA Standard

No code or standard



Norton Co.

Surface grinder *for fine grinding operations is shielded with hood guard*

New York, North Dakota, Rhode Island and the District of Columbia have codes or standards which are equivalent to the American Standard. (2) Nineteen states (California, Florida, Idaho, Illinois, Indiana, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Utah, Virginia, Washington, and Wisconsin) have codes, standards, or statutes covering some of the material included in the American Standard. Some of these state codes or standards are above and some below the American Standard. None of the nineteen embrace or cover the American Standard entirely in all phases. (3) Twenty states (Arizona, Arkansas, Connecticut, Delaware, Iowa, Kansas, Louisiana, Maine, Massachusetts, Mississippi, Missouri, Montana, New Mexico, South Carolina, South Dakota, Tennessee, Texas, Vermont, West Virginia, and Wyoming) do not have codes or standards covering safeguards for abrasive wheels.

The chart on pages 152-153 compares the requirements of individual rules under the American Standard with the requirements under State codes and standards, indicating whether the state requirements are the same as or very similar to the American Standard, or whether they are less restrictive or more restrictive than the American Standard.

Survey Conclusions

The U.S. Department of Labor concludes from its findings that a definite need exists for adoption of minimum abrasive wheel safety codes or standards by those states that have no codes or standards covering such equipment. "If all states would use the ASA [American] Standard as a basis for the drafting and adoption of new codes and the revision of old codes, the now existing variations between the ASA [American] Standard and the State Codes would be eliminated," the Department declares.

This analysis is reported in a pamphlet Abrasive Wheels, A Comparison of State Safety Codes with ASA Code B7.1-1947, *published by the Bureau of Labor Standards, U.S. Department of Labor, Washington 25, D.C. This publication is available upon request from the U.S. Department of Labor.*

DEPARTMENT OF DEFENSE CLASSIFICATION OF EQUIPMENT FOR INVENTORY CONTROL

This monumental publication, Defense Supply Management Handbook DSMA H3, issued by the Office of the Secretary of Defense, consists of 1118 pages, 7¾ x 10¼. It is a reprint of and supersedes the National Military Establishment Classification of Equipment for Inventory Control dated August 1, 1948. Approximately 6000 items for which subdivision of classes was accomplished since 1948 have been added.

The classification subdivisions and the numerical codes contained in this publication are, for the most part, based on Standard Commodity Classification promulgated by the Bureau of the Budget, Executive Office of the President, in 1946 and amended in 1947. "The contents have been adopted to the extent that they are prescribed by the Department of Defense Directives for use by the Armed Services in recording industrial machinery and equipment and in other functions for which the Standard Commodity Classification is prescribed," as stated in the foreword to this publication. It has been necessary for certain special utilizations to include some classifications which pertain to other than items of equipment.

The publication consists of an alphabetical index (111 pages) and equipment classification listing (1007 pages).

Alphabetical Index. — An alphabetical listing of equipment, showing the major group number (first two digits), the subdivision number of the major group (third and fourth digits), and the resulting broad classification code number (a total of four digits), under which items can be located in the equipment classification listing for further subdivision. The page on which the items will be found in the equipment listing is also given in the index.

Example: Engines, Diesel and semi-Diesel, class No. 3012, page 7.

Equipment Classification Listing. — A listing of equipment numerically sequenced by the classification code numbers within each major group (12 digits) showing constructional characteristics and size or capacity of equipment.

Example:

Engines, Diesel and semi-Diesel	3012 0000 0000
Under 50 horsepower	3012 1000 0000
1-cylinder	3012 1010 0000
Air-cooled	3012 1011 0000
Water-cooled	3012 1012 0000
Other cooling	3012 1019 0000

The publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., price $5.75.

Recent Rulings on Unusual Accidents

The following interpretations have been handed down by the Committee of Judges of ASA Sectional Committee Z16 on accident statistics. They serve as a guide to companies who want to know how to count injuries due to unusual accidents in their safety record.

Safety engineers are invited to obtain interpretations of the American Standard Method of Compiling Industrial Injury Rates, Z16.1-1945, by sending the facts on doubtful cases to ASA.

Reprints of all the published decisions can be obtained from ASA.

•

Case 243

A chlorine gas leak developed in the plant and a worker was overcome by the fumes and lost six days from work. This, the company agreed, is a reportable injury.

Although the employee lost only six days from work, he developed a throat irritation which hung on for some time and caused him to cough frequently and quite severely.

Three weeks later he went to his doctor for a pain in his groin which was later diagnosed as a hernia. It was the opinion of the doctor that the hernia had developed from the coughing which in itself was the result of the chlorine gas incident.

The question is: Should the hernia case be counted as a lost-time injury against the record of this company? If so, should it be counted as another injury with its own time charges, or should it be counted as a continuation of the first injury? In other words, are there two injuries or one injury? The company specifically wants to know how to count time charges in both of these situations.

The committee decided that the chlorine case and the hernia should be counted as a single injury, and that the time charge should include the actual days lost as a result of treatment of this hernia, in addition to the six days that were lost as a direct result of the clorine poisoning.

•

Case 244

A company wrote: "An operator was lifting on the head of a pump to free a binding impeller. While engaged in the process of lifting, he felt a stinging sensation in the lower regions of his abdomen. The pain was not severe; there was no interruption in his work and no mention of injury. Approximately a week later, he informed his supervisor of a swelling in the hernia region and furnished the information for an accident report. He was sent to the doctor and his case diagnosed as a single hernia requiring an operation. A witness verified the statement that this employee did lift the pump on the date mentioned in the accident report. No time was lost prior to the operation."

The committee decided that this case should not be included in the rates on the basis that the facts presented do not meet the three requirements of paragraph 2.2 of the standard.

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Case 245

During his regular tour of duty, an employee was repairing certain company equipment on employer's premises adjacent to a canal. A third party contractor, having no connection contractual or otherwise with employer, was at the same time performing certain work for another company at a point in the canal off employer's premises and approximately 200 feet from employee's position. Third party contractor set off, without warning, a dynamite charge which blew a large ball of mud into the air. This object descended upon employer's premises and struck employee in the back, resulting in a disabling injury.

The company wanted to know if this injury should be included in their rates.

The committee finally came to the conclusion that, on the basis of the present code, this employee's injury should be included in the rates. This employee was in the hazardous location because of his industrial employment.

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Case 246

A public utility groundman was taking wire from the back of a truck. The derrick stiff leg slipped and fell on his left foot. The employee reported to the doctor the following morning, complaining of a sprained ankle. The doctor examined and x-rayed the ankle, but was unable to give the employee a report of the x-ray findings that day. The doctor advised the employee to stay at home until the x-rays had been checked. The following day the x-ray pictures proved to be negative and the employee was advised he could return to work. The company did not believe that it should be charged with lost time from this injury because the lost time was required for the development and reading of the x-rays rather than for medical treatment.

The committee decided that this injury should be included in the rates on the basis that the doctor had instructed the employee to stay away from work for one day, and that paragraph 3.4.3 does not apply in this case.

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Case 247

On a hot July day an electrical lineman was working on an electric light pole. At 10 A.M., after he had been at work for two hours, he felt dizzy; therefore, he descended the pole, unassisted and safely. The temperature at this hour was 89 F, according to the U.S. Weather Bureau. After descending the pole, the lineman consumed part of the contents of a cold bottle of a soft drink in a corner grocery store, whereupon he fainted and fell to the floor. The employee suffered severe abdominal pain and experienced so much difficulty in breathing that artificial respiration had to be applied. He was taken to a hospital by ambulance. He was alternately coherent and incoherent for some time, but he recovered and was discharged from the hospital three days after the injury.

Further investigation revealed that he had been working strenuously during the weekends and at night on his own home. He had neglected to eat any breakfast on the morning of the injury and he had taken three salt tablets on an empty stomach. The medical department classified the case as due to heat exhaustion. The company questioned as to whether this should be charged as an industrial injury. It believed that the injury was not due to any temperature extreme, nor to the employee's duties while at work, but that it was because of his physical condition, and due to lack of good judgment on his part in not keeping himself in a physically fit condition.

The committee decided that this case should be included in the rates on the basis that this employee's work, which required working on a pole in the direct sunshine, subjected him to a greater exposure to heat than other members of the public.

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Case 248

A cable splicer was walking from the location of a tool cart toward the curb where a new street light pole was being installed. While walking along normally, his left knee gave way and he fell forward to the sidewalk. He stated that nothing unusual had occurred. He did not slip nor did he stumble but his knee had just cracked and given way. He was taken to the Company Medical Department where his knee was examined and he was given a heat treatment. He was able to return to work and lost no time as a result of the occurrence. He was seen several times by the Company doctor but was discharged from further medical treatment.

Six days later, this same employee went to the office to get an order signed. As he was about to enter the door leading to the inner office, another employee who was standing at this doorway stepped back and bumped into him. When this occurred, the cable splicer stated, he was in the act of taking a step. He was knocked off balance and his left knee cracked and hurt him. He attempted to continue with his work but was unable to do so and was again sent to the Company Medical Department for further treatment. The following day, he visited the office of a specialist who recommended an operation. It was found that he had a torn ligament. The semi-lunar cartilage was removed. The estimated disability in this case is four to six weeks.

The committee decided that the first incident should not be included in the rates, but that the second incident, which happened six days later, should be considered an industrial injury and included in the rates. Some of the members commented that usually when one employee bumps into another, this is not serious, but in this

particular case it did aggravate the employee's pre-existing condition and, in accordance with paragraph 2.3 of the standard, it should be included in the rates.

Cases 249, 250, and 251 were submitted by the same company at the same time.

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Case 249

An office clerk returned to work after having the 'flu. She asked for a pass to the hospital at 8:00 A.M., but felt tired and weak (she stated the weakness may have come from the strong medicine she had taken for the 'flu) and therefore, delayed going to the hospital until 9:30. When descending the stairs on the way to the hospital, she slipped and fell into a sitting position, sustaining a sprained ankle. Examination of the stairs indicated that they were in a sound and safe condition.

The committee decided that this injury should be included in the rates on the basis of paragraph 2.1.1 which states that injuries which occur while an employee is going from one part of the plant to another during working hours, shall be considered as arising out of, and in the course of employment.

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Case 250

A stenographer in the office was descending the stairway to the main lobby on her way out of the plant. It was after working hours. She stumbled on the third or fourth step and fell down the remaining 15 steps. She was wearing high heeled sandals. The left heel was loose when examined after the fall. The subject sustained contusion of head, wrist, hands, and knees. The stairway was inspected and found to be safe.

The committee decided that this injury should be included in the rates on the basis that this employee was still on company premises at the time of her injury.

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Case 251

While coming to work Miss X fell on the cement sidewalk outside of the shop but on company premises. Immediately before falling she felt faint. She states that she is under treatment for pernicious anemia and is subject to fainting spells. This subject was wearing flat-heeled shoes. The witnesses stated there was nothing on or near the sidewalk to cause the fall. The sidewalk is in good condition.

The committee decided that this injury should not be included in the rates. The members agreed that they were assuming that this employee's fainting was as a result of her pernicious anemia.

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Case 252

A textile employee had suffered a sacro-illiac sprain several years ago and had been wearing a brace for the past three years.

On the day in question, this employee, when working on a loom, with no lifting and no unusual movements, felt a pain in his back. He reported for work and worked three hours the following day, but had to leave work because of severe pain. He did not report for work the next day, but thereafter was able to return to his regular work. In its investigation, the company was unable to establish any definite incident which might have aggravated this pre-existing back condition. This employee was referred to the company doctor, and after complete examination including x-rays, the doctor stated that this recent injury was a recurrence of his previous injury. This was the same employee mentioned in Case 69.

The committee decided that the recent incident should not be included in the rates on the basis that the employee's disability was a recurrence of his previous injury and not the result of any new incident arising out of his employment.

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Case 253

A company wrote: "Recently an accident occurred at one of our plants which was considered a rupture case. The accident occurred on May 15, but no time was lost until June 15.

"As there are varying opinions among our personnel in interpreting the ASA Rules as to the date for assigning the time charges on an accident of this kind, we shall appreciate your interpretation. Should the time charge of 50 days be assigned from May 15, the date the accident occurred, or from June 15, the date on which lost time started?

"Another question which has risen from this incident is:

"If you consider a case where the doctor diagnoses an injury as a hernia, but, as in this case, the man continues his regular job without losing any time with the idea that he will undergo repair of the injury at some time convenient to himself. Then, before he has the operation, and before he actually loses time, he dies as result of a traffic accident or through some natural cause not connected with the hernia — would he be charged as a lost time accident?"

The committee noted that it was already agreed that this was a reportable hernia, and the only question was as to the proper date to which it should be charged. The committee decided that this hernia should be charged to the date of May 15 when the accident occurred and that the time charge should be 50 days. The committee members believed that, by this method of handling, the time charge would be uniform and would be the same no matter what might happen to the employee from natural causes between that date and such time as he might have the hernia repaired.

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Case 254

A truck driver had been driving an ordinary two and a half ton truck for several months. On this particular day he stepped from his truck and when his foot reached the ground, he felt his knee pop. He did not step on an uneven surface, nor did he twist his knee. The company emphasized that this employee had stepped on flat ground and that the truck was not unusually high. Medical examination revealed that this employee had weak supporting structure around his knee cap and a ruptured cartilage. Surgery had to be performed, and the man lost 13 days from work.

The company explained that after complete investigation, no unsafe acts nor unsafe conditions could be associated with this injury, except for the fact that apparently this employee had what might be called a "trick" knee. The company asked whether or not this injury should be included in the industrial injury rates.

The committee decided that the injury to this employee's knee should be included in the industrial injury rates, it being their opinion that it arose out of and in the course of employment.

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Case 255

Three employees on the second shift finished their work at the end of the shift and went to the wash room. Mr Q completed his shower before the other two employees, and started across the room to the place where his clothes were hanging. One of the other employees heard a noise and found Mr Q lying on the floor between the benches. Mr Q could not talk coherently and one of the other employees observed that his eyes were "out of focus." The two employees got Mr Q dressed and took him to the hospital and he regained consciousness about 3 A.M.

An examination by the company doctor indicated a slow pulse and a "partial heart block." Mr Q was kept in the hospital for about a week because of the heart condition. There was no indication of injury to other parts of the body except the bump on the head. The company had been unable to determine if the heart condition had caused the accident. The company wished to know if this injury should be included in the industrial injury rates.

The committee did not make a final decision in this case, but suggested that the company doctor be asked the following two questions:

1. Would the head injury alone have caused Mr Q to lose a full shift or more from work?
2. Could the fall and the resulting head injury have aggravated the existing heart condition to the extent that treatment of this condition was required with resulting loss of time?

If the doctor answered "no" to both of these questions, the case should not be counted. If he answered yes to either question, the case should be counted.

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Case 256

A company wrote: "An employee was hired in January, 1953. Pre-employment physical examinations revealed that he had had two previous inguinal herniorrhaphies, the first approximately in 1938, and the second in December, 1952. At the time of the pre-employment examination, there was no existing hernia present.

"The employee involved in this accident normally rode a bicycle while on guard duty. He coasted up to the station and stopped the bicycle. When he put his foot down to maintain his balance while punching the clock, he felt a pain in his left inguinal region.

"He completed his work for that day, working approximately 3½ hours. The following morning he reported the incident to the Dispensary and was examined that

afternoon by the Industrial Physician. That examination revealed no hernia. However, there was some tenderness during the examination, and a belt support was prescribed. The employee continued to perform his regular duties. He was advised to report to the Dispensary if he had further difficulty.

"On October 30, on arising from bed, he again complained of pain and was reexamined. This examination revealed a left inguinal hernia.

"He was referred to a surgeon for examination and was operated for repair of the hernia on November 10, 1953. The surgeon's examination and report revealed that the primary cause of the hernia was the result of an incomplete repair of the hernia done in December, 1952."

The question was whether or not this hernia should be included in the industrial injury rates.

The committee decided that this injury should not be included in the industrial injury rates. The members concluded that the operation in November, 1953 should be considered as further work on the hernia which was previously repaired in December, 1952 before the employee entered his present employment.

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Case 257

A company wrote: "S.A. said he fell down the stairs while coming from the men's room located on a balcony about 12 ft above the main floor level. He suffered a badly dislocated ankle.

"Although his story was that he fell down the steps, there was good evidence of his having jumped from the railing of the balcony to the floor. Men who were nearby on the main floor heard a loud thud and turned to find S.A. leaning against a 'hyster' truck, which was not at the foot of the steps, but under the balcony. If he had fallen down the steps he couldn't have reached this point so fast — especially with his injured ankle.

"He made the statement before his supervisor that he had jumped from the balcony. He went on to say, however, that if they called his family, 'don't tell them I jumped, they'll kill me.' The supervisor asked him why he had jumped and S.A. said, 'I don't know.'

"S.A. told the safety director he had fallen down the steps. When asked where they had picked him up, S.A. said, 'at the bottom of the stairs.' Witnesses said they picked him up under the balcony."

Further investigation revealed that S.A. had definitely jumped from the balcony — he didn't just fall down from it, the company reported. This was the second or third time S.A. had come through some "show off" episode. At one time, for example, he had bounced up and down on the bucket of a hyster truck in front of an audience of fellow employees, but fortunately was not hurt. When asked why he had jumped, employee said "I don't know — every once in a while I take a notion to do something like that." The injured lost two days as a result of the fall from the balcony. The company asked whether this injury should be counted in their industrial injury rates on the basis that this was a form of horseplay or showing off, or whether the injury should be considered as purposely self-inflicted, and hence should not be included in the rates in accordance with paragraph 2.4.

The committee decided that this injury should be included in the industrial injury rates as a horseplay case. The members of the committee did not believe that this employee had jumped from the balcony with the intent of injuring himself.

ASTM ANNUAL MEETING JUNE 13-18

• • **Thirty-six** technical sessions have been scheduled by the American Society for Testing Materials during its 57th Annual Meeting in Chicago, June 13-18. The Society's eleventh Exhibit of Testing and Scientific Apparatus and Laboratory Supplies and its ninth Photographic Exhibit will also be in progress throughout the week. Headquarters will be at the Hotels Sherman and Morrison. Six technical symposiums will also be featured. Three sessions will be devoted to fatigue; others will cover a range of subjects, such as Soils, Significance of Tests of Concrete, Bituminous and Road Materials, Effect of Temperature, Creep, Plastics, and Impact Testing.

A round table discussion on the Significance of Specifications will highlight the increasing importance of standardization and research in materials as viewed by the producer, the consumer, and by branches of the Armed Services.

R. J. Painter, Executive Secretary of ASTM, will introduce this special subject and present a background for the discussion. Arthur W. F. Green, Chief Metallurgist, Allison Division, General Motors Corp, will review the subject from the standpoint of the consumer of materials; A. O. Schaefer, Vice-President in Charge of Engineering and Manufacturing, The Midvale Co, will present the producer's viewpoint; and Captain C. R. Watts, Staff Director, Standardization, Department of Defense, Logistics and Supply) will present information and reactions from the viewpoint of the Defense Department.

All those interested in technical work and materials are invited to attend the meetings and exhibits.

TO STANDARDIZE TERMINOLOGY OF AUTOMATIC CONTROLS

• • **Standard terminology** in the field of automatic controls will be developed by national groups concerned, according to a resolution passed April 22 at a general conference held at the offices of the American Standards Association.

The project, to be known as "Terminology for Automatic Controls," will be carried on by a committee under the auspices of the American Standards Association.

The American Society of Mechanical Engineers, engaged with the American Institute of Electrical Engineers in terminology research in this field for the past ten years, was elected to provide administrative leadership as sponsor of the project.

ASA was asked to initiate a project by ASME, which advised:

"The magnitude of the work already accomplished jointly by ASME and AIEE as well as the growing interest in the broad field of automatic control seems to establish the need for the organization of an ASA sectional committee in this field . . . that a project be established under the American Standards Association with a view for a national standard terminology."

Organizations represented at the conference were: American Society of Mechnical Engineers; U.S. Navy, Bureau of Ships; Instrument Society of America; American Society for Testing Materials; National Bureau of Standards; Institute of Radio Engineers; Chemical Industry Advisory Board; American Petroleum Institute; Scientific Apparatus Manufacturers Association; National Electrical Manufacturers Association; U.S. Department of Defense; and the American Institute of Electrical Engineers.

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering please refer to the number following the title.

621.82 SHAFTING. BEARINGS. COUPLINGS

Germany (DNA)

Gear tolerance; general survey and table — DIN 3961, 3967

Japan (JISC)

Rollers for roller bearings — JIS B 1503*
Roller bearings — JIS B 1533*
Spherical roller bearings — JIS B 1535*
High precision radial ball bearing — JIS B 1521*
Plummer block for ball and roller bearings — JIS B 1551*
Steel balls for ball-bearings — JIS B 1501

Spain (IRATRA)

Rollers for roller bearings — UNE 18010
Needles for needle bearings — UNE 18023

Sweden (SIS)

2 types of bearing bushings — SMS 776/7

Switzerland (SNV)

List of names of dierent types of roller bearings — VSM 15710

621.83 GEARS. RACKS

Germany (DNA)

Determination of dimensions and defects of spur wheel — DIN 3960

Japan (JISC)

Involute gear tooth — JIS B 1701

Netherlands (HCNN)

Gears. Shape of involute teeth — V 1629

United Kingdom (BSI)

Gear hobs — BS 2062:1953

621.88 MEANS OF ATTACHMENT

Argentina (IRAM)

Countersunk head rivets for shipbuilding — IRAM 515

Czechoslovakia (CSN)

5 standards for turnbuckles — CSN 02 1371, -1386, -1399, -1682, -1940

Finland (SFS)

3 standards for different types of keys — B.VI.19/21

Germany (DNA)

Large head pins, semifinished, 30/100mm diam — DIN 1436, B1.2
Stone bolts, metric — DIN 529, B1.1
Anchor bolts, metric — DIN 797, B.1.1
Self-tapping sheet metal screws — DIN 7981/3
Square hammer-head bolts — DIN 186, B1.1
3 types knurled-head screws — DIN 464/5, -653
4 types recessed-head screws — DIN 7985/8
Hexagon socket-head cap screws — DIN 912
Spring washers — DIN 137
Different forms of screw points — DIN 78
Hexagon-head bolts, metric — DIN 609/10
Hammer-head bolts, two types — DIN 188, B1.1, 261, B11
Seven types machine screws — DIN 920, 922/7
Oval- and round-head wood screws — DIN 95, 96
Hexagon bolts fully threaded, metric — DIN 558, B1.1
Recessed-head wood screws — DIN 7997
Slotted countersunk head wood screws — DIN 97
Cross-recessed wood screws — DIN 7995/6
Low-cap-nuts, metric thread — DIN 917
High-cap-nuts, metric and Whitworth thread — DIN 1587

India (ISI)

Unified screw thread — IS:448

Italy (UNI)

8 standards for different types of machine screws, metric thread — UNI 3388/-3395

Japan (JISC)

4 types of nuts, metric and Whitworth — JIS B 1159/62
3 types of washers — JIS B 1252/4
Different types of wood screws — JIS B 1131/4*
Wire nails for export — JIS G 3126*
Allowance and tolerance of metric coarse thread — JIS B 0209
Allowance and tolerance of Whitworth coarse thread — JIS B 0210

Netherlands (HCNN)

Unified screw thread — coarse — V 1244
Unified screw thread — fine — V 1318

Norway (NSF)

Machine screws, Whitworth thread 1/8 in-3/4 in, round and countersunk heads — NS 850/3
Machine screws, metric thread, 1-10 mm, different heads — NS 854/7
Carriage bolts with square neck and nut — NS 870/1

Spain (IRATRA)

Screw threads, symbols — UNE 17002

Sweden (SIS)

Split pins — SMS 66
Grooved pins — SMS 1331
Slot rings for shafts — SMS 1581
Slot rings for holes — SMS 1582

Switzerland (SNV)

Cap nuts, finished, low and high, metric and Whitworth — VSM 12692/3
Pins, with and without head — VSM 12890/1

United Kingdom (BSI)

Black bolts, screws and nuts — hexagon and square, with BS Whitworth threads, and partly machined bolts, screws and nuts, hexagon and square with BS Whitworth or BS Fine threads — BS 916:1953
Unified machine screws and machine screw nuts — BS 1981:1953
Rolled sheet metal screw threads and associated threads in moulded plastics and die-cast materials for general purposes — BS 2038:1953
Unified screw threads — BS 1580:1953

USSR

Different types of bolt ends — OST 1713

621.89 LUBRICATION

Czechoslovakia (CSN)

6 standards for lubricants, sampling and testing — CSN 65 6301, -6305/9, -6315

India (ISI)

Grease A, No. O, graphited — IS:408
Specification for grease, type S No. 3 — IS:409

621.9 TOOLS, MACHINE TOOLS

Australia (SAA)

Standard specification for cable drilling tools — AS No. A.80-1953

China, Nationalist (CNS)

Arbor center hole — CNS 300-B140
15 standards for different taps, Whitworth and metric, hand operated — CNS 301/315, -B141/155
3 standards for aluminum and lead collapsible tubes — CNS 336/8, -B173/5
Glass bottle with screwed cap — CNS 339/40, -B176/7
25 standards for bicycles and bicycle parts — CNS 341/365, -B178/202
Testing code for bicycles — CNS 366-B203

Czechoslovakia (CSN)

31 standards for different shapes of lathe cutters — CSN 22 3700/2, -3710/18, -3720, -3722/4, -3726, -3728/32, -3734/41, 3744

Germany (DNA)

Tips of high-speed steel, different forms of — DIN 771
11 standards for different cutting tools — DIN 4951/6, 4959/61, 4963, 4965
Hand reamers, adjustable — DIN 859
Table of different sizes of sieve wire — DIN 4186, B1.1
Square-mesh wire net for sieve — DIN 4289, B1.7

India (ISI)

Round punches — IS:413

Japan (JISC)

Small tools: wrenches, pliers, cutters, etc. — JIS B 4604/5, -4623/9*
7 standards for gear cutters different types — JIS B 4207, 4351/6
9 standards for different reamers — JIS B 4403/11
Hand drills and chucks — JIS B 4611/2
Ball pein hammers — JIS B 4613
Twist drills, straight shank — JIS B 4312
14 standards for testing and checking different machine tools — JIS B 6201/14
Testing sieves — JIS Z 8801

Netherlands (HCNN)

Surface roughness. Principles — V 630A
Carbide-tipped turning tools — identification colors, letters, marks — V 1600

Spain (IRATRA)

5 standards for different joiner's tools — UNE 41017/21

Sweden (SIS)

Grinding wheels — SMS 394
4 standards for different type circular saws for wood — SMS 1301/4
2 standards for frame saw blades — SMS 1433/4

Band saw blades, tooth types N.O.S. — SMS 1547
Hole punching for the handles filling saws — SMS 1548
Peg holes — SMS 832
Woodruff keys slot cutters — SMS 951/3

United Kingdom (BSI)

Tapping drill sizes — BS 1157:1953
Dimensions of diamond abrasive wheels and tools — BS 2064:1953

622 MINING

Germany (DNA)

Miner's knee pads, rubber — DIN 23311
Mining hoses, couplings — DIN 20030
Intake safety device for compressed air line — DIN 20008
Apron for circular saw operator — DIN 23309
Rubber safety boots, watertight — DIN 23312
First aid kit for mines, dimension and contents — DIN 23405
Safety rubber boots for miners — DIN 23302
Compressed air pipe line: branch outlet — DIN 20007
Single and double miner's package — DIN 6436
Clearance diagrams for different types of mining main line locomotives — DIN 20602

Sweden (SIS)

7 standards for different forgings used in mines — SIS 380201/7
5 standards for different mining and industrial railway tracks and rails — SIS 380101/5

624 CIVIL ENGINEERING

Denmark (DS)

Building Code, part 7: Hollow brick flooring — DS 416

Germany (DNA)

Rules for investigation of building sites — DIN 4020
Acoustical testing of buildings — DIN 52211
Permissible loading of building foundations — DIN 1054, Bb

Ireland (IIRS)

Panelled wood doors — IS 52

Japan (JISC)

Glued wood panels — JIS A 5404
Rails for sliding doors — JIS A 5509
Slate — JIS A 5102
Asbestos-cement pipes for water supply — JIS A 5301
Steel sash bars — JIS A 5503
Heat insulator of Diatomaceous Earth material — JIS A 9509

Norway (NSF)

Dimensions for shaft, cabin and motor room for passenger elevators — NS 835/6
Dimensions for shafts of goods and passenger elevators — NS 837
Dimensions for shaft, cabin and motor room of hospital elevators — NS 838
Dimensions for shaft of dumbwaiters — NS 839

Spain (IRATRA)

Minimum admissible overloads for calculation of structures — UNE 24003

624.1 EARTHWORK, FOUNDATIONS

Japan (JISC)

3 methods for soil sampling and testing — JIS A 1211/3

624.21 BRIDGES

Czechoslovakia (CSN)

Designing and building of bridges — CSN 73 6201

625.1/.6 RAILWAYS. TRAMWAYS

France (AFNOR)

Railway materials: Round form of screw thread — PNF F 00-016/7
Tie rods and turnbuckles — NF F 01-055
Handles for operating railway sliding windows — NF F 31-002
3 types of lag screws for vignole rails — NF F 50-003/5
Greasing brush for rolling stock — NF F 76-023

Italy (UNI)

Brackets for railway track signals — UNI 3356

Japan (JISC)

Heavy rails and plates — JIS E 1101/2
Fishplate bolts and nuts — JIS E 1107
Different parts for suspension tramway overhead lines (7 standards) — JIS E 1301, -2205/9, -3601

Spain (IRATRA)

Axle ends and lathe center for it — UNE 25075

625.7 ROAD CONSTRUCTION

Germany (DNA)

Boundary stones — DIN 284

Spain (IRATRA)

Sidewalk granite blocks — UNE 41027

625.8 PAVING OF ROADS AND HIGHWAYS

Netherlands (HCNN)

Pre-cast concrete curbs — N 498/9

Spain (IRATRA)

Testing for friction wear-out of paving stone — UNE 7069
Freezing test of paving stones — UNE 7070

United Kingdom (BSI)

Bitumen macadam with gravel aggregate — BS 2040:1953

628.2 SEWERS

Germany (DNA)

Shaft lining of drainage installations — DIN 1229
Drainage installation — DIN 1986, Bl 1, 2
Drainage grating for yards — DIN 1237, Bl 1-4
Cleaning hand hole in sewer pipes — DIN 1391
Drainage grating for streets — DIN 593, Bl 1-4
4 standards for indoor sewer discharge with grating and trap — DIN 4282/5

629.11 LAND VEHICLES. TRANSPORT ENGINEERING

Denmark (DS)

Hand trucks for electric motors 5-15 HP — DS 749

Germany (DNA)

4 standards for different types of pneumatic tires for agricultural machines — DIN 7807/8, 7810, 7813
Dash board instruments flush mounted — DIN 75501
Airbrake hose — DIN 74310
2 types of tires for tractors — DIN 7811/2
Wide wheel rims for tractors — DIN 7823
Solid rubber tires — DIN 7845
Motorcycle and sidecar wheel rims — DIN 7816
Wheel rims for industrial hand trucks — DIN 7825
Location of clutch, brake and gas pedals in automobile — DIN 73001

Japan (JISC)

6 standards for bicycles and their parts — JIS B 9419/24
Clincher rim for motorcycles — JIS D 4214

629.111/.118 KINDS OF VEHICLES

Belgium (NBN)

Lighting and signaling systems — NBN 188

Czechoslovakia (CSN)

9 standards for automobile brakes and parts — CSN 30 3410, -3414/5, -3420, -3423/7

Netherlands (HCNN)

Rules for the electrical installation in buses — V 925

629.12 SHIPS AND SHIPBUILDING

France (AFNOR)

Reels for fire hoses — NF J 41-665/6
Lifeboats for less than one hundred persons — NF J 37-812

Germany (DNA)

Thin hexagon and octagon nuts — DIN 80705
Rules for the electrical installation on sea-going vessels — DIN 89001
Manila, Sisal and soft Hemp marine ropes — DIN 83305, Bl.1, 2 83306

Italy (UNI)

5 standards for seamless tubes and fittings for naval heat exchangers — UNI 3338/3342

Japan (JISC)

Turnbuckle for lumber lashing — JIS F 2101
5 standards for hinges, latches and handles — JIS F 2307/12
Anti-mosquito gauze for air scuttle — JIS F 2403
Side scuttle, sky light, deck light — JIS F 2404/6
Hand-rail stay — JIS F 2608
Awnings — JIS F 2610
Swivels for ship lines — JIS F 3402
Cargo eye-plate — JIS F 3411
Cleat — JIS F 3414
Mud box — JIS F 7203
Rose box, flanged type — JIS F 7205

Netherlands (HCNN)

Marking of wooden hatches — V 1333
Marking of shifting beams — V 1334

629.13 AIRCRAFT ENGINEERING

Japan (JISC)

Piston rings for aircraft engines — JIS W 4231

631 AGRICULTURE IN GENERAL

France (AFNOR)

Fertilizers: chemical analysis of ammonium sulfate — NF U 42-101
Titration of potassium permanganate — NF U 43-109

Germany (DNA)

Agricultural wagons on pneumatic tires — DIN 11741
Lawn trimmer — DIN 11564
Agricultural truck on pneumatic tires — DIN 11745
4 standards for agricultural hand tools — DIN 11560/3
Sod lifting tool — DIN 11559
Stop catch for conveyor — DIN 11723

United Kingdom (BSI)

General purpose farm buildings — BS 2053:1953

632 PHYTOPATHOLOGY

France (AFNOR)

Chemical analysis of copper acetate — NF U 43-108

637 PRODUCE FROM DOMESTIC ANIMALS

Netherlands (HCNN)

Determination of standard degree of acidity of cream — N 1106

What Is Your Question?

Can you suggest a source of information to use as a guide for a general tolerance note covering all dimensions not specifically toleranced? Does ASA have a set of suggested commercial tolerances?

A number of companies have a general tolerance note printed on the tracings used for their drawings, but there are no generally adopted rules. It is the impression of the ASA staff that use of general tolerances is the exception rather than the rule.

"Commercial tolerances" evidently can only be applied where definite commercial products are under consideration. For example, in some of its pamphlets the American Iron and Steel Institute gives commercial tolerances on steel products of various kinds, such as bar stock. In general, it seems to be good practice to be specific and use numerical values when dealing with tolerances or limits, rather than to refer to traditional practice. When a tolerance has been specified in an American Standard, reference can be made to this standard because the standard gives the same answer to all who consult it. Tolerances on non-machined surfaces usually do not have to be specified.

The establishment of limits and tolerances has been discussed by Professor Earle Buckingham of the Massachusetts Institute of Technology in a number of publications. The second edition of his *Principles of Interchangeable Manufacturing* was published in 1941 by The Industrial Press. A series of articles on "Dimensions and Tolerances for Mass Production" which ran in *Machinery* for several months in 1953 is being published in book form later this year. An announcement will be carried in THE MAGAZINE OF STANDARDS when the book is available.

In the American Standard Specification for Dry Cells and Batteries (Leclanché Type), C18-1947, there is a provision that the cell designation given in Table 1, referring to cylindrical cells, may also apply to cells of other dimensions and shapes. Does this include "flat type" cells?

This includes ten sizes of flat cells. A revision of American Standard C18-1947 is now being completed. It lists in a separate table standard sizes of flat cells which go into assembled batteries that are comparable in size and capacity to batteries made up of cylindrical cells or other shapes. The proposed revision also includes designations for several standard sizes of mercury batteries in general use, together with equivalent sizes of air depolarized cells.

What are the standard drawing sizes recommended by the American Standards Association?

The American Standard on Drawing and Drafting Practice, Z14.1-1946 recognizes five sizes, using 8½ x 11 in. as the basic size. These are 8½ x 11; 11 x 17; 17 x 22; 22 x 34; and 34 x 44.

A proposed revision of this standard now recognizes two basic sizes — 8½ x 11 and 9 x 12. The sizes derived from these basic sizes given in the proposed revision are:

Basic Size 8½ x 11 — 8½ x 11; 11 x 17; 17 x 22; 22 x 34; 34 x 44.
Basic Size 9 x 12 — 9 x 12; 12 x 18; 18 x 24; 24 x 36; 36 x 48.

Also included in each series is a size that is not a multiple of either the 8½ x 11 or the 9 x 12 in. basic size. This is 28 x 40 in.

In MIL-S-7742 paragraph 6.3-(b) states "Where a class 2 internal thread is now specified, a class 3B may be substituted." It has been our impression that if a company using Class 2, American National internal and external threads, were to change over to comply with MIL-S-7742, it would use Class 2A and 2B.

Nominally, the changeover has been from Class 2 to Class 2A on screws, and from Class 2 to Class 2B on nuts and internal threads that are not plated. Plated 2A screws are gaged with a Class 2 Go Ring Thread gage after plating. Due to some of the special requirements of the products covered by MIL-S-7742, however, the substitution specified in paragraph 6.3-(b) must be followed as printed.

Actions by ASTM Administrative Committee on Standards, January 13, 1954

New Tentatives

Methods of:
- Chemical Analysis of Whiteware Clays (C 323 – 53 T)

Specifications for:
- Diatomaceous Earth Block Thermal Insulation (C 333 – 54 T)
- Diatomaceous Earth Thermal Pipe Insulation (C 334 – 54 T)

Tentative Revisions of Standards

Specifications for:
- Concrete Sewer Pipe (C 14 – 54)
- Reinforced Concrete Sewer Pipe (C 75 – 54 T)
- Reinforced Concrete Culvert Pipe (C 76 – 54 T)
- Concrete Irrigation Pipe (C 118 – 54 T)

Revisions of Tentatives

Specifications for:
- Open-Hearth Iron Plates of Flange Quality (A 129 – 54T)
- Carbon-Silicon Steel Plates of Intermediate Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels (A 201 – 54 T)
- Chromium - Manganese - Silicon (CMS) Alloy-Steel Plates for Boilers and Other Pressure Vessels (A 202 – 54 T)
- Nickel-Steel Plates for Boilers and Other Pressure Vessels (A 203 – 54 T)
- Molybdenum-Steel Plates for Boilers and Other Pressure Vessels (A 204 – 54 T)
- High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels (A 212 – 54 T)
- Manganese-Vanadium Steel Plates for Boilers and Other Pressure Vessels (A 225 – 54 T)
- Low and Intermediate Tensile Strength Carbon-Steel Plates of Flange and Firebox Qualities (Plates 2 in. and Under in Thickness) (A 285 – 54 T)
- High Tensile Strength Carbon-Manganese-Silicon Steel Plates for Boilers and Other Pressure Vessels (A 299 – 54 T)
- Chromium - Molybdenum Steel Plates for Boilers and Other Pressure Vessels (A 301 – 54 T)
- Manganese - Molybdenum Steel Plates for Boilers and Other Pressure Vessels (A 302 – 54 T)
- Low-Carbon High-Ninckel Steel Plate for Pressure Vessels (A 353 - 54 T)

Standards Engineers Society

All three sections of the Standards Engineers Society have been active this spring. The New York Section heard Stanley Wirtschafter, Quality Control Engineer, ITE Circuit Breaker Company, give a talk on quality control March 31. On April 26 the Metropolitan Philadelphia Section heard W. J. Kiernan, Bell Telephone Laboratories, Inc, talk on standardization of color in industry. The Southern Tier Section, with headquarters at Binghamton, New York, held a round table discussion April 23 on limits and fits and the proposed ABC standard B4/30. The meeting was conducted by A. F. Gange, Jr, Assistant Professor at Cornell University and Consulting Engineer and P. A. Lunday, Manufacturing Standards Department, IBM Corporation.

Plans are underway for an annual meeting in June.

Government Officials Meet with ASA Board

A number of top government officials with direct responsibility for supervision of the Federal Government's standardization activities met with ASA's Board of Directors at an informal dinner April 14. They were: A. V. Astin, Director, National Bureau of Standards; W. M. Brucker, General Counsel of the Department of Defense; R. F. Hepenstal, Director, Cataloging, Standardization and Inspection, Office of Assistant Secretary of Defense — Supply and Logistics; C. E. Mack, Commissioner, Federal Supply Service, General Services Administration; F. D. Newbury, Assistant Secretary of Defense — Applications Engineering; D. A. Quarles, Assistant Secretary of Defense — Research and Development. Roger E. Gay, ASA President, presented an analysis of what ASA is and what it can do for the Government. Cyril Ainsworth, technical director, gave a picture of the work under way and what it means to the Government organizations. Both the members of the Board and their guests participated in the general discussion that followed.

Standard Letter Symbols Avoid Confusion

To avoid conflict of letter symbols used in technical and scientific publications, a series of American Standards is being prepared. Three American Standards in this series were published recently. These are the American Standard Letter Symbols for Acoustics, Y10.11-1953; and American Standard Letter Symbols for Radio, Y10.9-1953; and American Standard Letter Symbols for Meteorology, Z10.10-1953.

In each of these standards the list of symbols is presented in two ways for easy use. First, the list is given in alphabetical order according to the quantities for which the symbols stand. Next, in an appendix, the symbols are listed alphabetically followed by the names of the quantities.

Four basic principles are recommended for publication of symbols and signs and are explained in detail in the standards. These are:

(1) Follow the standard wherever possible.

(2) Do not assign different meanings to a given symbol — avoid making its meaning ambiguous.

(3) Be careful not to use symbols which, when published, might confuse the reader.

(4) Select symbols which will be economical to publish.

The American Society of Mechanical Engineers is sponsor of Project Y10 (originally known as Z10).

The three new American Standards are available at $1.00 each.

Use Conduit Standards

"Now that the American Standards on enameled and zinc coated rigid steel conduit are available, we shall require in our electrical standards and specifications that all conduits furnished us by vendors be in accordance with these standards. We expect that they will greatly assist us to secure consistently good conduit installations." — Lester M. Goldsmith, General Manager, Engineering and Construction Department, The Atlantic Refining Company, Philadelphia, Pa.

The standards referred to are American Standard Specification for Rigid Steel Conduit, Zinc Coated, (NEMA 110-1953, ASA C80.1-1953) and American Standard Specification for Rigid Steel Conduit, Enameled, (NEMA 111-1953; ASA C80.2-1953).

• • **A survey** recently completed shows the reduction in cost of producing an item of electronic equipment redesigned according to the Modular Design of Electronics (see "Project Tinkertoy," STDZN, Nov 1953, p 326). The survey, made for the National Bureau of Standards at the request of the Navy Bureau of Aeronautics, showed that the manufacturing costs of the modular design equipment were reduced 44 percent below the cost of conventionally designed equipment when the modular equipment was produced mechanically. Costs were reduced 38.5 percent below those of conventional equipment when the modular design equipment was produced by hand fabrication methods.

• • **The Farm Equipment Institute** has just become a Member-Body of the American Standards Association. New Associate Members are the Tile Council of America; National Clay Pipe Manufacturers, Inc; Cast Iron Soil Pipe Institute. ASA Member-Bodies have the privilege of voting on approval of standards and new standardization projects under the procedure of the American Standards Association. Associate Members do not vote but are kept informed of all standardization activities.

• • **The City of Detroit** writes ASA that an amendment to the Detroit Refrigeration Ordinance makes the 1953 edition of the American Standard Safety Code for Refrigeration, B9.1-1953 a part of the Official Refrigeration Ordinance of the City of Detroit. When the refrigeration code book is

Letter Symbols — —The Engineers' Shorthand

Here are recently approved letter symbols for three modern sciences—radio, acoustics, and meteorology. Others will understand the symbols you use if you follow American Standards — agreed upon by widely representative ASA Sectional Committee Y10.
(Sponsor: **The American Society of Mechanical Engineers.)**

Just available —

Letter Symbols for Radio, Y10.9-1953

These standard symbols, under development for some years, have been greatly expanded due to growth of this science during and since World War II. Includes symbols for technical terms used in radio engineering, such as "absorption factor," "heat content enthalpy," "pulse-recurrence frequency," "resonance frequency."

Price $1.00

Letter Symbols for Meteorology, Y10.10-1953

First standard letter symbol published for this science. The American Meteorological Society collaborated with The American Society of Mechanical Engineers, Y10 sponsor. Standard lists letter symbols for primary concepts, with appendix of subscripts to qualify the primary symbols. Symbols for cloud types and air masses, and classification symbols in climatology not included.

Price $1.00

Letter Symbols for Acoustics, Y10.11-1953

These first letter symbols ever published for acoustics are arranged both alphabetically by concept and alphabetically by symbol. Includes such concepts as "displacement, volume," distance, linear," "acoustical reactance," "speed of sound," and "volume displacement."

Price $1.00

American Standard letter symbols are also available for hydraulics (Z10.2-1952, 50¢); mechanics of solid bodies (Z10.3-1948 R1953, 50¢); heat and thermodynamics, including heat flow (Z10.4-1953, 65¢); electrical quantities (Z10.5-1949, 60¢); physics (Z10.6-1948, $1.00); aeronautical sciences (Z10.7-1950, $1.25); structural analysis (Z10.8-1949; 50¢); gear engineering (B6.1949; 50¢). Entire set $7.50.

American Standards Association
70 East 45 Street, New York 17

reprinted it will contain a verbatim copy of the 1953 edition of the B9 Code.

• • **Standardization** and simplification of Government specifications for packaging has been recommended by representatives of the industrial shipping containers industries. The recommendation was made at a conference with the Business and Defense Services Administration, U.S. Department of Commerce.

This recommendation followed a discussion of Government packaging inspection and specifications which disclosed that more than a half dozen Departments and Agencies establish varying requirements for packaging the same commodity.

BDSA officials told the industry representatives the Containers and Packaging Division is already working on this problem with the Agencies and Departments concerned, with a view to eliminating, insofar as possible, multiple specifications for packaging Government purchases.

• • **Irvin H. Fullmer** has been appointed chief of the National Bureau of Standards' Engineering Metrology Section. Mr. Fullmer is secretary of the Interdepartmental Screw Thread Committee and chairman of the Federal Specifications Board's Technical Committee on Bolts, Nuts and Screws. He represents the National Bureau of Standards and the American Society of Mechanical Engineers on a number of ASA sectional committees having to do with screw threads, pipe threads, bolts and nuts, wire diameters, and allowances and tolerances for cylindrical parts. He is chairman of Subcommittee 8 on Screw Thread Nomenclature and Symbols of Sectional Committee B1, and chairman of Subcommittee 10 on Glossary of Terms for Mechanical Fasteners of Sectional Committee B18.

Mr. Fullmer has been with the Bureau for more than 30 years. During that time he has made significant contributions to the measurement of length by contact and interferometric methods, standardization and design of screw threads, and calibration of precision gage blocks.

• • **ASTM Committee D-4** on Road and Paving Materials celebrated its fiftieth anniversary during ASTM Committee Week in February. The organization meeting of the committee had been held February 8, 1904. Development of suitable standards for establishing the proper quality of materials used in road and highway construction has played an important part in the development and improvement of roads and highways in this country during the past 50 years. Committee D-4 was one of the three original technical committees of ASTM, having been known as Committee "H." The membership of the committee has grown from 20 to the present 154. Its scope has expanded in keeping with the expansion in types of road materials and construction during this period.

• • **Specifications** that will insure the safety of those who use electric-motor and magnetic - operated appliances have just been released by the International Commission on Rules for the Approval of Electrical Equipment (CEE).

Publication No. 10, Specification for Electric Motor-Operated Appliances, contains the rules considered necessary by the 15 European countries composing CEE, for the safe operation of certain appliances to be used in the home, farm, office, and similar places. It governs such items as vacuum cleaners, sewing machines, fans, phonographs, food and drink mixers, refrigerators, clothes and dish washers and dryers, shavers and clippers, business machines, motion picture projectors, etc.

Because of the general use in Europe of 220 volts for lighting and appliances, many of the requirements for electrical apparatus are more severe than those imposed in the U.S. where the standard is 120 volts.

In most of the countries of Europe approval by the electrical safety testing station recognized by CEE is necessary before an appliance may be sold and used.

Copies of the publication may be obtained from the American Standards Association, 70 East 45th Street, New York 17, at $2.00 per copy.

AMERICAN STANDARDS

Status as of April 12, 1954

Legend

Standards Council—Approval of Standards Council is final approval as American Standard; usually requires 4 weeks.

Board of Review — Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks.

Standards Boards — Approve standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Building

American Standard Published —

Specifications for Masonry Cement, ASTM C91-53; ASA A1.3-1954 $0.25
Sponsor: American Society for Testing Materials

In Board of Review —

Specifications for Gypsum Partition Tile or Block, ASTM C52-41; ASA A105.1

Specification for Standard Strength Perforated Clay Pipe, ASTM C211-50; ASA A106.1

Specifications for Drain Tile, ASTM C4-50T; ASA A6.1 (Revision of ASTM C4-24; ASA A6-1925)

Specifications for Sewer Brick (Made from Clay or Shale) ASTM C32-50; ASA A100.1

Specifications for Ceramic Glazed Structural Clay Facing Tile, Facing Brick and Solid Masonry Units, ASTM C126-52T; ASA A101.1

Specifications for Vitrified Filter Block for Trickling Filters, ASTM C159-51; ASA A102.1

Specifications for Chemical-Resistant Masonry Units, ASTM C279-52T; ASA 103.1

Definitions of Terms Relating to Structural Clay Tile, ASTM C43-50; ASA A104.1
Sponsor: American Society for Testing Materials

Consumer

In Consumer Goods Standards Board —

Specifications for Milled Toilet Soap, ASTM D455-53T; ASA K60.6 (Revision of ASTM D455-48; ASA K60.6-1949)
Sponsor: American Society for Testing Materials

Specifications and Methods of Test for Fineness of Wool Tops, ASTM D472-53T; ASA L14.29 (Revision of ASTM D472-50T; ASA L14.29-1951)

Methods of Test for Clean Wool Content of Wool in the Grease, ASTM D584-53T; ASA L14.40 (Revision of ASTM D584-52T; ASA L14.40-1953)

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics, ASTM D462-53; ASA L14.28 (Revision of ASTM D462-53; ASA L14.28-1953)

Specifications for Textile Testing Machines, ASTM D76-53; ASA L14.66 (Revision of ASTM D76-49; ASA L14.66-1951)

Definitions of Terms in Relation to Textile Materials, ASTM D123-53; ASA L14.12 (Revision of ASTM D123-52; ASA L14.12-1953)
Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Withdrawal Being Considered —

Specifications and Methods of Test for Osnaburg Cement Sacks, ASTM D205-39; ASA L14.15-1949

Specifications and Methods of Test for Woolen Yarns, ASTM D403-48T; ASA L14.21-1949

Specifications and Methods of Test for Worsted Yarns, ASTM D404-48T; ASA L14.22-1949
Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Electrical

American Standards Published —

A-C Power Circuit Breakers, C37.4-1953 (Revision of C37.4-1945) $0.60
Contains service conditions, definitions, ratings, temperature limitations, and dielectric tests which apply to all indoor and outdoor types of hernating-current power circuit breakers rated in excess of 1500 volts.

Methods for Determining the RMS Value of a Sinusoidal Current Wave and a Normal-Frequency Recovery Voltage, C37.5-1953 (Revision of C37.5-1945) $0.60
Covers, in detail, the methods in general use by industry for determining the values of the parameters listed in the title of the standard.

Test Code for Power Circuit Breakers, C37.9-1953 (Revision of C37.9-1945) $0.60
Summarizes the various tests which may be made on power circuit breakers and describes accepted methods used in making these tests. The tests include both design and production tests.

Specification for Weather-Resistant Wire and Cable, Neoprene Type, C8.34-1954 $0.50
Sponsor: Electrical Standards Board

American Standard Approved —

Method for Determining Flutter Content of Sound Recorders and Reproducers, Z57.1/68-1954
Sponsor: Institute of Radio Engineers

In Board of Review —

Requirements and Test Code for Instrument Transformers, C57.13 (Consolidation of C57.13-1953 and C57.23-1948)
Sponsor: Westinghouse Electric Corporation

Flexible Cord and Fixture Wire, C33.1 (Revision of C33.1-1953)
Sponsor: Underwriters' Laboratories, Inc.

Standard Submitted —

Asbestos, Asbestos-Varnished Cloth and Asbestos Thermoplastic Insulated Wires and Cables, C8
Submitted by: National Electrical Manufacturers Association

Withdrawal Being Considered —

Test Code for Instrument Transformers, C57.23-1948
Sponsor: Westinghouse Electric Corporation

Graphic Standards

American Standard Approved —

Graphical Symbols for Electrical Diagrams, Y32.2-1954 (Revision of Y32.1.1-1951; Z32.3-1946; Z32.5-1944; Z32.10-1948 and Z32.12-1947)
Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Withdrawal Requested —

Graphical Symbols for Single (One) Line Electrical Engineering Diagrams, Y32.1.1-1951

Graphical Symbols for Electric Power and Control, Z32.3-1946

Graphical Symbols for Telephone, Telegraph and Radio Use, Z32.5-1944

Graphical Symbols for Electron Devices, Z32.10-1948

Basic Graphical Symbols for Electric Apparatus, Z32.12-1947
Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Mechanical

American Standard Published —

Rotating Air Cylinders and Adapters, B5.5-1954 (Revision of B5.5-1932 R1949) $1.00
Sponsors: American Society for Testing Materials; Metal Cutting Tool Institute; National Machine Tool Builders Association; Society of Automotive Engineers

In Board of Review —

Double-Pitch Power Transmission Roller Chains and Sprockets, B29.3

Double-Pitch Conveyor Roller Chains, Attachments and Sprockets, B29.4
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

In Mechanical Standards Board —

Attachments for Transmission Roller Chains, C29.5
Sponsors: American Society for Testing Materials; Society of Automotive Engineers

Mining

In Mining Standards Board —

Quarry Safety Code, M28.1
Sponsor: National Safety Council

Miscellaneous

American Standard Published —

Specifications for Thermometers, ASTM E1-53; ASA Z71.1-1954 $0.75
Sponsor: American Society for Testing Materials

American Standards Approved —

Method of Test for Accelerated Aging of Vulcanized Rubber by the Oxygen-Pressure Method, ASTM D572-53; ASA J4.1 (Revision of ASTM D572-52; ASA J4.1-1953)

Method of Test for Accelerated Aging of Vulcanized Rubber by the Oven Method, ASTM D573-53; ASA J5.1 (Revision of ASTM D573-52; ASA J5.1-1953)
Sponsor: American Society for Testing Materials

In Miscellaneous Standards Board —

Methods of Testing Felt, ASTM D461-53; ASA L14.52 (Revision of ASTM D461-51; ASA L14.52-1953)
Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

Specification for Photographic Grade Citric Acid, Anhydrous, PH4.107

Specification for Photographic Grade Sodium Bromide, PH4.207

Method for Determining the Chemical Resistivity and Photographic Inertness of Constructional Materials for Processing Equipment, PH4.13

Method for Indicating the Stability of the Images of Processed Black-and-White Films, Plates, and Papers, PH4.12 (Revision of Z38.1.17-1948)
Sponsor: Photographic Standards Board

American Standard Withdrawn —

Gas Floor Furnaces, CS-99-42
Sponsors: American Gas Association; National Bureau of Standards

Motion Pictures

American Standards Approved —

35-Mm Sound Motion Picture Film Usage in Camera, PH22.2-1954 (Revision of Z22.2-1946)

35-Mm Sound Motion Picture Film Usage in Projector, PH22.3-1954 (Revision of Z22.3-1946)

Dimensions for 8-Mm Motion Picture Film, PH22.17-1954 (Revision of Z22.17-1947)

Dimensions for 35-Mm Motion Picture Positive Raw Stock, PH22.36-1954 (Revision of Z22.36-1947)

Slides and Opaques for Television Film Camera Chains, PH22.94-1954
Sponsor: Society of Motion Pictures and Television Engineers

Petroleum Products and Lubricants

American Standards Published —

Test for Viscosity by Means of the Saybolt Viscosimeter, ASTM D88-53; ASA Z11.2-1953 $0.25

Test for Distillation of Gasoline, Naphtha, Kerosene and Similar Petroleum Products, ASTM D86-53; ASA Z11.10-1953 $0.25

Test for Distillation of Gas Oil and Similar Distillate Fuel Oils, ASTM D158-53; ASA Z11.26-1953 $0.25

Definitions of Terms Relating to Petroleum, ASTM D288-53; ASA Z11.28-1953 $0.25

Test for Color of Refined Petroleum Oil by Means of Saybolt Chromometer, ASTM D156-53T; ASA Z11.35-1953 $0.25

Test for Knock Characteristics of Motor Fuels by the Motor Method, ASTM D357-53; ASA Z11.37-1953 $0.25

Method for Calculating Viscosity Index, ASTM D567-53; ASA Z11.45-1953 $0.25

Method for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, ASTM D446-53; ASA Z11.46-1953 $0.25

Test for Knock Characteristics of Motor Fuels by the Research Methods, ASTM D908-53; ASA Z11.69-1953 $0.25

Test for Distillation of Natural Gasoline, ASTM D216-53; ASA Z11.11-1953 $0.25

Test for Tetraethyllead in Gasoline, ASTM D526-53T; ASA Z11.48-1953 $0.25

Test for Oil Content of Paraffin Wax, ASTM D721-53T; ASA Z11.52-1953 $0.25

Test for Carbonyl Content of Butadiene, ASTM D1089-53; ASA Z11.81-1953 $0.25

Sponsor: American Society for Testing Materials

Photography

American Standard Approved —

Method for Determining Photographic Speed and Exposure Index, PH2.5-1954 Revision of Z38.2.1-1947)
Sponsor: Photographic Standards Board

In Photographic Standards Board —

Dimensions for 70-Mm Perforated Film for Cameras Other Than Motion Picture Cameras, PH1.20

Method for Determining Spectral-Sensitivity Indexes and Group Numbers for Photographic Emulsions, PH2.5 (Revision of Z38.2.4-1946)

Specification for Photographic Grade Sodium Metaborate, Octahydrate, PH4.231

Specification for Photographic Grade Sodium Tetraborate, Pentahydrate, PH4.233
Sponsor: Photographic Standards Board

Safety

In Board of Review —

Method of Marking Portable Compressed Gas Containers to Identify the Material Contained, Z48.1 (Revision of Method of Marking Compressed Gas Cylinders to Identify Content, Z48.1-1942)
Sponsor: Compressed Gas Association

Dr Huntoon Appointed NBS Associate Director

The appointment of Dr Robert D. Huntoon as Associate Director for Physics was recently announced by Dr A. V. Astin, Director of the National Bureau of Standards. The Bureau's organization now provides for four associate directors. In addition to Dr Huntoon, Dr Walace R. Brode, formerly Associate Director for Research is now Associate Director for Chemistry; Dr A. T. McPherson, continues as Assistant Director for Testing; and Nicholas E. Golovin, formerly Associate Director, is now Associate Director for Administration.

Dr Huntoon, formerly Director of the National Bureau of Standards Corona (California) Laboratories, brings to the newly created position of Associate Director for Physics broad experience in the fields of atomic and nuclear physics and electronics. He has also been designated Acting Chief of the NBS Electronics Division and of the Bureau's Central Radio Propagation Laboratory.

Wide recognition has been accorded Dr Huntoon for his research on atomic-beam measurement, special amplifiers, atomic particle counting, electronic ordnance devices, the phasing of oscillators, and deuteron-deuteron nuclear reaction studies. As Director of the Corona Laboratories, which are now being operated by the Department of Defense, Dr Huntoon was responsible for a research and development program that included guided missiles, electronic ordnance devices rigital computers, and infrared measurements.

• • **Harold F. Dodge,** Quality Results Engineer and Member of the Technical Staff, Bell Telephone Laboratories, Inc, is presenting the 28th Edgar Marburg Lecture at the Annual Meeting of the American Society for Testing Materials in June. His subject is "Interpretation of Engineering Data."

Mr Dodge is chairman of ASTM Committee E-11 on Quality Control of Materials and was one of the scientists who developed the American War Standards on Quality Control.

ASTM to Publish Directory of Commercial and College Laboratories

The *Directory of Commercial and College Laboratories,* hitherto compiled and published by the National Bureau of Standards of the U. S. Department of Commerce, will be published in the future by the American Society for Testing Materials. First published in 1927, the Directory has been periodically revised. It provides interested persons with information concerning the location of testing laboratories together with the types of commodities and the nature of the investigations the laboratories are prepared to undertake.

ASTM is now gathering data for the revised edition of the Directory. Every known testing laboratory will be requested to furnish information about its testing activities. Efforts are being made to reach laboratories not now listed through appropriate notices in the technical and business press.

The Directory is designed to be of assistance to the large number of purchasers who are not equipped to make their own acceptance tests and therefore have hestitated to buy on specifications.

Until the revised ASTM Directory is completed, the present Directory, National Bureau of Standards Miscellaneous Publication M187, published in 1947, will continue to be available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Cement Reference Laboratory Celebrates 25th Anniversary

In the closing days of 1928, three prominent members of ASTM Committee C-1 on Cement called on the Director of the National Bureau of Standards, the Secretary of Commerce, and the Director of the Budget Bureau to discuss the establishment of a laboratory where the equipment and methods used in the testing of cement might be calibrated and standardized.

The 70th Congress appropriated $12,500 for the establishment of a Cement Reference Laboratory at the National Bureau of Standards. The Portland Cement Association had previously appropriated a similar amount. The Laboratory began operating in mid-1929 and in April 1954 celebrates its 25th anniversary.

In March 1929 a meeting was held in Washington to formulate plans for carrying on the work. The following was outlined as the work to be done and methods to be followed.

To establish a laboratory with apparatus and personnel capable of making tests of portland cement in strict conformance with the specifications.

To instruct on established methods of making tests, maintaining testing equipment, and to calibrate testing equipment when submitted.

To report, when requested to by the directing head of a cement testing laboratory, on the adequacy and accuracy of its apparatus to make cement tests to conform with standard specifications and to issue suitable certificates covering apparatus only to those laboratories entitled to them.

To make, on request, tests of cement for the purpose of enabling a laboratory to check its results with those of the Reference Laboratory.

In 1953, the Laboratory completed its tenth tour of inspection, which required three years to complete and covered 261 state highway, university, municipal, and commercial laboratories. In this work the Laboratory's experts checked on such varied apparatus as balances; Vicat and Gilmore needles; air content apparatus; glass graduates; flow tables; compression, tension, and flexure testing equipment.

The laboratory recently completed a test series on standard samples of cement in which 206 laboratories participated. As an example of the effectiveness of the Laboratory's work, 98 per cent of the laboratories in this series reported within 1 per cent accuracy in determining normal consistency properties of the standard cement.

NEW CYLINDER STANDARD ASSURES INTERCHANGEABILITY

A 1954 edition of the American Standard, Rotating Air Cylinders and Adapters, has been published. This standard makes it possible to interchange different makes of air cylinders on the spindles of machine tools without changing the adapter or draw rod. The revisions bring it into line with the Unified and American Screw Threads, B1.1-1949.

Three sizes of standard adapters cover the range of standard air cylinders from 3 in. to 18 in., inclusive. The length of stroke of the standard cylinders, the position of the piston rod at the end of the stroke, the diameter of the piston rod, and the size of the tapped hole in the piston rod have been standardized so that air cylinder draw rods do not have to be fitted to individual air cylinders.

The diameters specified for the piston rods are as small as is consistent with the strength required.

The piston rods and adapters specified in this standard have been designed to withstand stress resulting from air pressures up to 100 lb per sq in. It is intended that these pistons and adapters may also be applied to hydraulic cylinders or to other mechanical operating devices which do not develop working stresses in excess of those developed by the corresponding sizes of air cylinders.

Revision of 1932 Edition

This 1954 edition is a revision of a 1932 standard, which had been reaffirmed in 1949 without change. It was developed by Technical Committee 11 on Chucks and Chuck Jaws of Sectional Committee B5, Small Tools and Machine Tool Elements. The technical committee was organized in 1928 and the standard on rotating air cylinders and adapters was the first standard it developed. Copies of American Standard, Rotating Air Cylinders and Adapters, B5. 5-1954, are available both from the publisher, the American Society of Mechanical Engineers, and from the American Standards Association at $1.00.

What's New on American Standard Projects

Small Tools and Machine Tool Elements, B5 —

Sponsors: Metal cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; The American Society of Mechanical Engineers.

George F. Habach, Executive Engineer, Harrison Works, Worthington Corporation, is the recently elected vice-chairman of Sectional Committee B5. Mr Habach has had considerable experience in ASA committee work in addition to Committee B5. A wide variety of activities includes work on M6, drainage of coal mines Y1, abbreviations; Y32, graphical symbols and designations; Y10, letter symbols; and B54, numbering systems for anti-friction bearings. As a member of Committee B5, he works on Technical Committee 26, which is preparing detailed specifications on mounting dimensions of lubricating and coolant pumps.

Mr. Habach has been with the

George F. Habach

Worthington Corporation since 1929, starting as designer in the engineering department and specializing on centrifugal pumps as application engineer, product engineer, and chief engineer of the centrifugal engineering division. From 1951 to date he has been executive engineer of the Harrison Works.

He is a member of the American Society of Mechanical Engineers, the Standards Engineers Society, and the National Society of Professional Engineers.

Electrical Measuring Instruments, C39 —

Sponsor: American Institute of Electrical Engineers.

The new chairman of Sectional Committee C39 on Electrical Measuring Instruments — H. C. Koenig — has an impressive list of committee activities both in AIEE and ASA as background for his new responsibilities.

Mr. Koenig is a member of the Board of Directors of the Electrical Testing Laboratories and is Manager of the Electrical Laboratory Services. In this latter capacity he is responsible for tests and inspections of a wide variety of materials, equipment, and apparatus. He has been with the Laboratories since 1925 when he joined the staff as technical assistant in the Electrical Department. From 1916 to 1952 he was on the faculty of the Cooper Union in the electrical and physics departments.

Mr. Koenig is a Fellow and Member for Life of the American Institute of Electrical Engineers.

He has been an AIEE committee member for as long as he has been with ETL — since 1925. At that time he became member of the AIEE Committee on Instruments and Measurements, a membership he still holds. Since 1927, when he first became Secretary of this committee, he has been an officer of some of AIEE's most important technical committees: — Dielectric Loss Measurements, Shielding in Electrical Measurements, Measurement of Starting Currents of Fractional Horsepower Motors; Instruments and Measurements; and on revision of standards for indicating instruments. At present he is a member of the AIEE Standards Committee and the Test Code for Power Measurements, and of the Watthour Meter Subcommittee.

Mr. Koenig's activity in the American Standards Association goes back almost as far as with AIEE — to 1926, when he became secretary of

H. C. Koenig

Sectional Committee C12, a committee set up for revision of the Code for Electricity Meters.

In the interim, he has been a member of Sectional Committee C18, Dry Batteries; C71, Electric Ranges; and Z26, Safety Glazing Materials. He has been secretary of Sectional Committee C39, of which he is now chairman, since 1933. He is also chairman of the subcommittee on Recording Instruments, C39.2, and a member of the subcommittee on Indicating Instruments, C39.1.

Mr. Koenig succeeds Everett S. Lee, Editor, General Electric Review, as chairman of Sectional Committee C39.

Greek Type for Scientific Publications —

Eight large publishers of technical and scientific material were represented at an informal meeting in the the American Standards Association offices, February 19. Also present were the chairman of ASA Sectional Committee Y10 on Letter Symbols, the chairman of ASA's Graphic Standards Board, and a representative of the Mergenthaler Linotype Company. This was the second of a series of meetings called by ASA in an effort to straighten out the difficulties publishers of scientific material now encounter in using letter symbols in conjunction with regular type faces. The greatest difficulty, the

editors indicated, is with the use of Greek letters as letter symbols. In order to determine what Greek fonts and what Roman text fonts are now in use, samples are being collected from each of the publishing organizations represented. These will be studied and recommendations made as to the best combination of Greek letters for use by all the publications.

Harold P. Westman, chairman of ASA's Graphic Standards Board, was elected chairman of the committee. The publishers represented were the American Institute of Electrical Engineers, American Institute of Chemical Engineers, American Society of Mechanical Engineers, American Institute of Physics, Institute of Radio Engineers, American Standards Association, Textbook Clinic of the American Institute of Graphic Arts, and the American Society for Testing Materials. Since a question has arisen concerning the international use of Greek letter symbols in electrical engineering, the secretary of the United States National Committee of the International Electrotechnical Commission was also present.

Textiles —

"Minimum requirements for all textiles" is the aim of a new project approved by the Consumer Standards Board of ASA at its meeting March 30. The committee which is now to be organized will build on the American Standards already completed for rayon fabrics. The National Retail Dry Goods Association, which represents 8,000 department stores, was approved as sponsor of the project. The work is being undertaken at the request of NRDGA.

Charles W. Dorn, director of the research and testing laboratories of the J. C. Penney Company, represented the retailers at the meeting of the Consumer Standards Board. He predicted that "These requirements will establish a chain of confidence between the manufacturer, the retailer and ultimately the consumer."

Albert E. Johnson, representing the National Institute of Dry Cleaning, explained that the proposed standards were not intended to be a restriction on quality, but "a floor on which to build."

STANDARDS OUTLOOK

by LEO B. MOORE

A SOUND evaluation of the contribution of a standards program to company objectives is one effective means for gaining top management support. For the standards engineer, the problem is — what do I need to know and need to measure in order to appraise the value of standards work, to increase its support, and to make appropriate improvement?

The answer must be based on acceptance of the fact that management, in the final analysis, directs the company through control of its resources. The continuing aim of the company to make a profit requires that every expenditure be assessed in the light of its effect on that profit.

This difficulty of appraising an activity is not new. Other service functions justify their existence, and the techniques they use shed some light on the approaches available to the standards engineer. For example, contrast the different problems of evaluation facing personnel and cost reduction. Standards, faced with a mixture of both types of problem — nonfinancial and financial — will need to measure both.

To measure financial gains, the cost reduction and waste elimination men should be consulted. They are used to comparing changes in standard costs. Care must be taken to differentiate between claimed and obtained values. Low estimates of financial gains are considerably more desirable in the "claiming" stage in order to permit happy comparison with actuals when they are finally figured.

For nonfinancial gains, the personnel people and those in research, safety, purchasing, production engineering, and others who deal primarily in service will be able to help. From these sources and with their assistance, it should be possible to develop methods of measuring improved morale, desirable action, ease of operation, specific benefit, and whatever seems to fit your company's situation. It should be possible to get statements from other sections of the company of the general value of standards to them.

These two areas measure a standards engineer's impact on the company, but another opportunity for support rests in his own operations. Well-written activity reports that include progress, developments, and trends are most effective. The department's activities can be broken down according to projects and a list of projects maintained for all to see. With each item on the project list, a preliminary survey of the objective, scope, value, and expected date of completion should be included. The department could be run by projects on schedule. Engineers' time and other expense should then be charged to each project and the final total expense compared to expected gains. Total of all projects should be compared to the departmental budget. The summation of the expected return from projects untouched or incomplete gives a measure of the contribution still to be made. The situation should be analyzed in numerical terms. Figures are always effective measuring sticks.

Finally, a statement of policy can be developed for the department, which includes its objectives, and its method of operation and control. The service aspects of standards should be reaffirmed.

Thus it can be proven that standards are a highly valuable and extremely necessary means to attainment of the company's objective of business at a profit.

Mr Moore is Assistant Professor of Industrial Management at MIT where he teaches a full-term course in industrial standardization.

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